



*ARIZONA INJURY SURVEILLANCE  
AND PREVENTION PLAN*

**2002 – 2005**

**Arizona Department of Health Services  
Division of Public Health Services  
Bureau of Emergency Medical Services**



To All Arizonans:

The bad news is that Arizona's injury rate exceeds the national average in most major categories. We have had an especially bad record when it comes to traffic-accident injuries and injuries Resulting from falls.

The good news is we are doing something about it immediately.

The Arizona Department of Health Services (ADHS) entered into a four-year cooperative agreement with the national Centers for Disease Control and Prevention to develop a statewide plan for the surveillance and prevention of injuries to our citizens. Utilizing public and private sector partners, the plan will expand and improve coordinated efforts, communication efforts and cooperation among the many injury prevention programs in Arizona.

After many months of hard work on the part of very dedicated participants, we are pleased to present the Arizona Injury Surveillance and Prevention Plan.

This plan specifically addresses all major categories of injury including motor vehicle accidents, criminal acts, suicide attempts, firearm-related incidents either accidental or intentional, drowning and near-drowning, traumatic brain and spinal cord incidents, poisoning, fire and non-fire burns and accidental falls. Implementation of the plan will be led by ADHS and the Division of Public Health Services. Administration and coordination efforts will rest with the Bureau of Emergency Medical Services.

We sincerely believe this plan provides an excellent template for immediate and future accident and injury prevention and reduction programs and results. As a result of the Injury Surveillance and Prevention Plan, Arizona will become a safer place for all of us.

Sincerely,

Janet Napolitano  
Governor

Catherine R. Eden  
Director

Arizona Department of Health Services

Injury Surveillance and Prevention  
Plan for the State of Arizona

2002 – 2005

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## ACKNOWLEDGEMENTS

The Bureau of Emergency Medical Services is greatly indebted to the people who gave so generously of their time and shared their expertise in the development of the Arizona Injury Surveillance and Prevention Plan.

These people include administrators and representatives of each of the Bureaus and many offices of the Department of Health Services, representatives of community and tribal programs and of other efforts devoted to injury prevention throughout the State of Arizona.

Through their leadership and vision this plan has been developed.

A complete listing of participants is in the Appendix.

## **EXECUTIVE SUMMARY**

### **ARIZONA INJURY SURVEILLANCE AND PREVENTION PLAN**

#### **Purpose**

Over the next 3 to 5 years, expand and improve efforts to control injury through coordination, communication and cooperation among the various programs in the Arizona Department of Health Services (ADHS) and outside agencies appropriate to each of the injury topics.

#### **Background and Development**

Recognizing that Arizona's injury statistics exceed the averages of the entire nation in all but one area, in September of 2000 the Arizona Department of Health Services (ADHS) entered into a four year Cooperative Agreement with the Centers for Disease Control and Prevention (CDC) to develop a statewide plan for the surveillance and prevention of injury. The Director of ADHS assigned responsibility for the design, maintenance, and implementation of the Plan to key staff, who worked with partners throughout the state (see acknowledgements). An External Advisory Council, made up of leaders in the field of injury control, collaborated with an Internal Work Group, representing Divisions of Public Health Services, Assurance and Licensure, and Behavioral Health to develop the Plan. An ongoing Injury Advisory Council will continue to review progress in implementation, assist in problem solving, participate in revision and evaluation of the Plan and act as liaison between external agencies and ADHS in implementing the Injury Surveillance and Prevention Plan.

#### **Implementation**

Leadership for the State Injury Plan is located in the Department of Health Services, Division of Public Health Services, Bureau of Emergency Medical Services. Programs and strategies for reducing death and morbidity from injury are also found in the Bureaus of Community and Family Health, Public Health Statistics, and in the Divisions of Behavioral Health and Assurance and Licensure, among others.

Within this Plan, data-based surveillance drives the process on which priority for action and strategies to reduce injury is predicated. Specific injuries and risk behaviors addressed reflect the 14 core injuries and risk factors for injury surveillance identified by the State and Territorial Injury Prevention Directors' Association (STIPDA).

ADHS will continue to work with outside agencies and programs that strive to reduce injuries and violence and to provide data for surveillance. Among these are state, local and tribal police and fire departments, the Arizona Domestic Violence Coalition, Arizona Department of Public Safety (DPS), highway safety groups, poisoning, drowning surveillance and prevention groups, hospitals, schools, behavioral health agencies, and various community and school-based programs. Through various means, formulation of policy and legislative enactment will support the efforts of those who have developed and will continue implementation of the Plan.



# **ARIZONA INJURY SURVEILLANCE AND PREVENTION PLAN**

## **SECTION I: INTRODUCTION TO THE PLAN**

### **Vision**

Injuries rank among the most burdensome of diseases in our civilized society. Arizona injury statistics exceed the average in the nation for all but one category among the top ten. The vision for Arizona is a state in which injury deaths and severity will have been reduced below the national average, a vision shared by all Arizonans for two main reasons: the impact is great and the injuries are preventable. The vision will be supported by a fully integrated, data driven, collaborative program among community and governmental interests.

### **Purpose**

Therefore, over the next 3 to 5 years, this Plan will guide efforts to expand and improve control of injury through coordination, communication and cooperation among the various programs in the Arizona Department of Health Services (ADHS) and outside agencies appropriate to each of the injury topics.

### **Values**

Underlying the goals and strategies of this Plan are basic values which include:

1. Cultural appropriateness and sensitivity to the needs of the target group and their inclusion in development and implementation of the Plan.
2. Participation of agencies at the federal, state, tribal, and local levels.
3. Ability of people to learn and take advantage of culturally appropriate educational materials proven to be effective in promoting strategies to avoid injury.
4. Balance between personal responsibility for one's actions and their consequences, and a civilized society's responsibility to create a healthy (injury-free) environment in which to live.

### **Definition of Injury**

In this Plan the term "injury" is defined broadly and is used in a variety of ways. For example, injuries may be designated by body part (e.g., traumatic brain injury), cause (e.g., motor vehicle crash), nature of the injury (e.g., burn), or intent (e.g., intentional vs. unintentional). Other aspects of an injury include its risk factors (e.g., alcohol), location (e.g., playground), setting (home or work), affected group (children), or activity (diving or boating).

## **Emphasis of the Plan**

This Plan emphasizes the building of Arizona's core capacity in two areas, data and infrastructure, and has used a five step, Public Health, approach:

- define the problem;
- identify prevention strategies;
- identify partners who can assist with the intervention strategies;
- implement the interventions; and
- evaluate progress and outcomes.

## **Appreciating Arizona's Injury Problem**

The magnitude of the injury problem can be considered from several perspectives: its high rank among leading causes of death, the number and proportion of deaths it causes, years of potential life lost, hospitalization rates and charges, number of emergency department visits, number of persons disabled, and its effects on family and community (see Table 1).

There are persisting differences in Arizona's rates of injury compared to that of the United States (see line graphs on pages 11 and 12). These differences suggest that there may be risk factors that account for Arizona's elevated rate, which may be preventable or controllable. Some of the compelling findings from the data can be summarized:

- Injuries account for almost 9% of all deaths in the state;
- Injuries rank as the leading cause of death from 1 to 44 years of age, and fifth among persons of all ages; and
- The impact of injuries is felt by more than the individual who is injured: it also affects families, schools, employers, friends, neighbors, and society as a whole.

## **Disparities Among Groups**

The most challenging aspect of variations in injury rates within Arizona is that the burden is not shared equally across demographic groups:

- Young persons are injured at greater rates than older persons;
- Males are at greater risk than females;
- Motor vehicles account for half of the injury deaths;
- Alcohol and other drugs increase the risk for many injury categories;
- Urban and rural rates differ for some injuries;
- For most injuries, non-white races are generally at higher risk than Whites; and
- Native Americans are at much greater risk of motor vehicle deaths.

These and other facts suggest that intervention programs can be targeted at persons and groups at greatest risk. More specific information is included in the chapters on each injury.

Table 1.

Arizona  
10 Leading Causes of Deaths by Age Group: 1996-1998

Rank	AGE GROUPS										Total
	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	
1	Congenital Anomalies 431	Unintentional Injuries 191	Unintentional Injuries 85	Unintentional Injuries 116	Unintentional Injuries 833	Unintentional Injuries 952	Unintentional Injuries 1,151	Malignant Neoplasms 1,872	Malignant Neoplasms 3,913	Heart Disease 25,661	Heart Disease 30,959
2	Short Gestation 179	Congenital Anomalies 41	Malignant Neoplasms 26	Homicide 23	Homicide 423	Suicide 432	Malignant Neoplasms 777	Heart Disease 1,545	Heart Disease 2,926	Malignant Neoplasms 18,295	Malignant Neoplasms 25,244
3	Sids 136	Malignant Neoplasms 22	Homicide 13	Suicide 20	Suicide 362	Homicide 365	Heart Disease 550	Unintentional Injuries 718	Bronchitis Emphysema Asthma 630	Cerebro – vascular 6,492	Cerebro-vascular 7,302
4	Pneumonia & Influenza 87	Homicide 19	Congenital Anomalies 10	Malignant Neoplasms 18	Malignant Neoplasms 78	Malignant Neoplasms 236	Suicide 495	Liver Disease 402	Unintentional Injuries 462	Bronchitis Emphysema Asthma 6,049	Bronchitis Emphysema Asthma 6,908
5	Perinatal Infections 66	Heart Disease 11	Heart Disease 6	Congenital Anomalies 14	Heart Disease 48	HIV 175	Liver Disease 294	Suicide 348	Cerebro – vascular 429	Pneumonia & Influenza 3,423	Unintentional Injuries 6,498
6	Placenta Membranes 63	Pneumonia & Influenza 11	Bronchitis Emphysema Asthma 5	Heart Disease 9	Congenital Anomalies 15	Heart Disease 174	HIV 279	Diabetes 242	Diabetes 429	Diabetes 2,029	Pneumonia & Influenza 3,991
7	Maternal Complications 59	Septicemia 7	Pneumonia & Influenza 5	Pneumonia & Influenza 6	Pneumonia & Influenza 15	Liver Disease 57	Homicide 240	Cerebro – vascular 212	Liver Disease 361	Unintentional Injuries 1,890	Diabetes 2,856
8	Unintentional Injuries 58	Meningitis 5	Benign Neoplasms 4	Bronchitis Emphysema Asthma 4	Bronchitis Emphysema Asthma 13	Diabetes 36	Cerebro-vascular 111	Bronchitis Emphysema Asthma 141	Pneumonia & Influenza 183	Alzheimer's Disease 1,370	Suicide 2,287
9	Remainder Respiratory 40	Benign Neoplasms 4	Septicemia 3	4 Tied	Cerebro – vascular 10	Pneumonia & Influenza 36	Diabetes 110	Pneumonia & Influenza 131	Suicide 174	Nephritis 862	Liver Disease 1,738
10	Neonatal Hemorrhage 35	Cerebro-vascular 4	4 Tied	4 Tied	Septicemia 9	Cerebro – vascular 29	Pneumonia & Influenza 94	HIV 125	Nephritis 89	Athero-sclerosis 836	Alzheimer's Disease 1,374

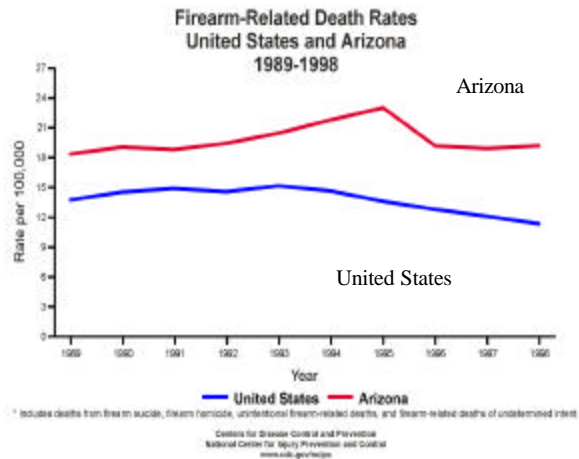
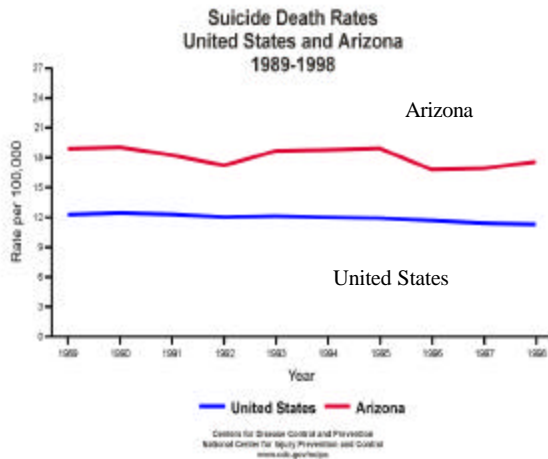
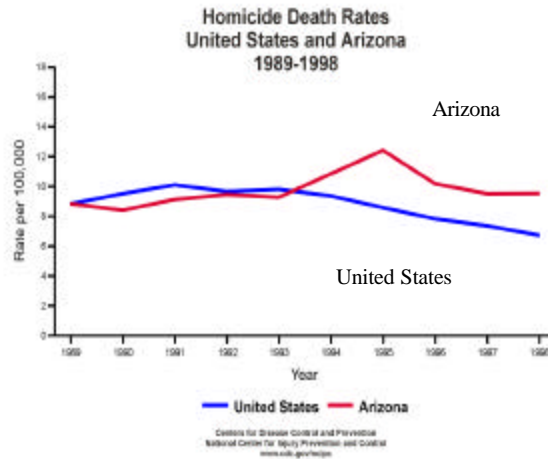
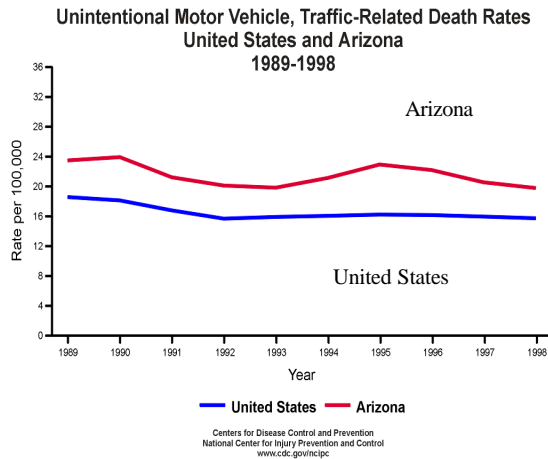
Arizona  
Total Number of Injury Deaths

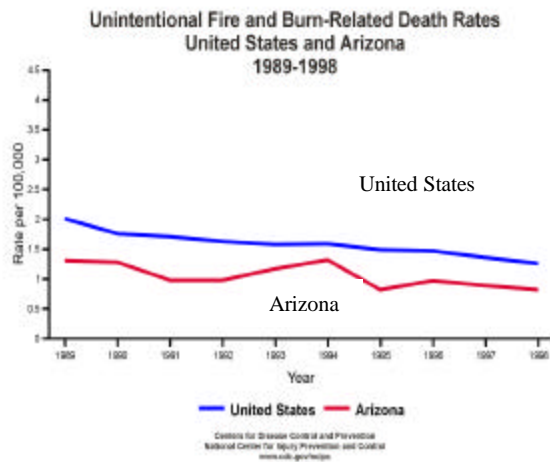
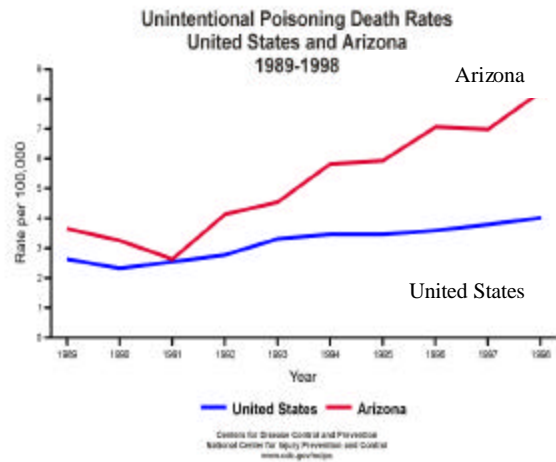
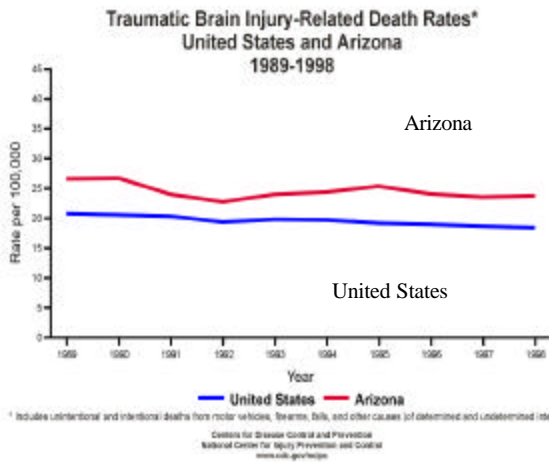
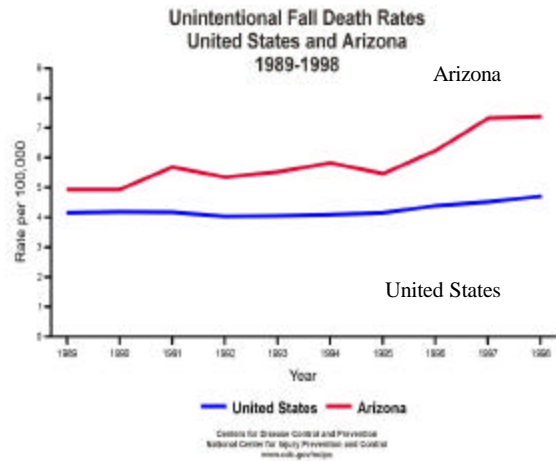
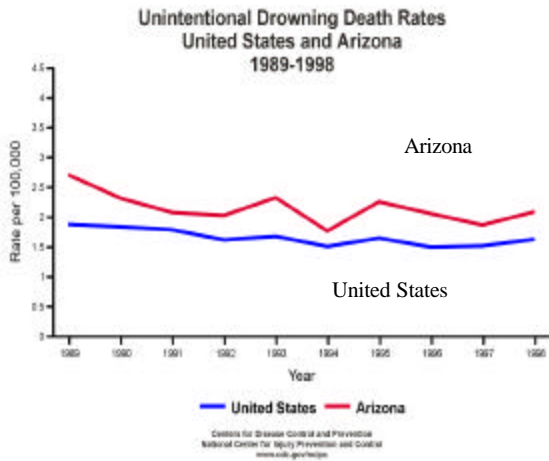
Cause	Deaths	Percent
Unintentional Injury	6,498	64.30%
Intentional Injury	<u>3,608</u>	<u>35.70%</u>
<b>Total (1996-1998)</b>	<b>10,106</b>	<b>100.00%</b>

Average Number of Injury Deaths per Year  
In: Arizona = **3,369**

## Arizona Compared to the United States

Not only do Arizona's death rates from most injuries exceed the US rates, the trends for many injuries are worsening. Ten-year trends for the major categories of injury are found in the line graphs below.





## **Costs of Injury Nationally**

Costs of care for injured individuals include not only interventions in emergency facilities, transportation, hospitalizations, and rehabilitation, but also lost productivity and income. Because injury mortality and morbidity occur more frequently in ages 15-44, loss of productivity, and concomitant cost, is a greater societal problem in injury than for any of the three more frequent causes of death, which also more commonly affect older people with fewer years of productivity to lose. The CDC has estimated that 57 million people in the US were injured in 1985 with associated lifetime costs of \$157.6 billion dollars.<sup>1</sup> The costliest injuries resulted from motor vehicle crashes (\$48.7 billion), falls (\$37.3 billion), and firearms (\$14.4 billion).

Direct personal medical and non-medical costs of \$44.8 billion dollars included \$24.5 billion for hospital costs, \$6.5 billion for outside physician care and \$2.5 billion for subsequent nursing home care. A subset of the costs of injury is the annual amount expended for acute treatment and long term effects (excluding nursing home and institutionalized care), estimated to be \$69 billion in the US (using 1993 dollars) in addition to an average loss of 9 years of productive life per 100 persons. This is 12% of total medical care expenditures. The average expenditures for injury amounted to \$274 per capita.

## **Costs of Injury in Arizona**

Costs for Arizona are similarly enormous. In a crude estimate, Arizona's portions of injury-related expenditures were approximately \$1.1 billion in 1994.<sup>2</sup> More recently, hospitalization data for Arizona in 1999 show that 28,801 persons were discharged with injury as their principal diagnosis. The sum of just the hospital charges for these admissions amounted to \$534,160,536<sup>3</sup>; the average hospital charge amounted to \$18,546. Furthermore, based on recent national figures there are about 200 emergency department visits for every injury-related death,<sup>4</sup> an estimated 643,600 persons in Arizona would have sought emergency room care for injury in 2000.

Although we are unable to accurately quantify the figure, we can assume that the number of persons who are disabled from injury also places an enormous burden on families and communities.

## **Development of the Plan**

Recognizing the need to reduce the number of persons injured and dying from intentional and unintentional injuries, the Arizona Department of Health Services (ADHS) entered into a Cooperative Agreement with the Centers for Disease Control and Prevention (CDC) to develop a statewide plan for the surveillance and prevention of injury in Arizona. ADHS activities to support this Agreement commenced in September of 2000.

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<sup>1</sup> Rice DP, Mackenzie EJ, et al. *Cost of Injury in the United States A report to Congress*. San Francisco, CA: Institute for Health and Aging, Univ of California and Injury Prevention and Center, The John Hopkins University, 1983. P 83.

<sup>2</sup> CDC. National estimates of nonfatal injuries treated in hospital emergency departments—United States, 2002. *MMWR*; May 4, 2001; 50 (17):340-6.

<sup>3</sup> Miller TR, et al. Medical Care Spending, United States *MMWR*, Aug 19, 1994;43 (32):581-586.

<sup>4</sup> Based on the population of the United States and Arizona, we estimate the Arizona portion as: 1.6% of the \$69 billion.

The Director of ADHS assigned responsibility for the development of the Plan to staff willing to lead the planning process. These planning activities were conducted in collaboration with partners listed in the Acknowledgements section under Appendices of this document.

The Director appointed an External Advisory Council, composed of leaders in the field of injury control, to work closely with an Internal Work Group (i.e., representatives from the Divisions of Public Health Services, Assurance and Licensure, and Behavioral Health) in the development of the Plan. An ongoing Injury Advisory Council, appointed by the Director, will continue to review progress, assist in problem solving, and participate in revisions and evaluation of the Plan. Members of the Injury Advisory Council will provide guidance in implementing the steps necessary to carry out the Plan.

### **Injuries Covered by the Plan**

The Arizona Injury Plan addresses the 14 core injuries identified by the State and Territorial Injury Prevention Directors Association (STIPDA),<sup>1</sup> plus a chapter on Violence Against Women. The 15 specific areas have been consolidated into 10 Chapters in Section III.

The priorities presented in the Plan are supported by CDC, *Healthy People 2010* and *Healthy Arizona 2010* agendas as well as many other organizations and agencies in the state. In setting priorities and choosing interventions, the External Advisory Council considered issues relating to confidentiality, availability and reliability of databases, feasibility of interventions, costs and number of persons who would benefit.

#### **STIPDA-Recommended Core Injuries**

- Motor vehicle injuries
- Alcohol in motor vehicle deaths
- Seat belt use
- Homicide
- Suicide
- Suicide attempts
- Firearm injuries
- Traumatic brain injuries
- Fire and burn injuries
- Smoke alarm use
- Submersion injuries
- Traumatic spinal cord injuries
- Fall injuries
- Poisoning
- State-added topic - Violence against women

### **Leadership**

ADHS has taken the lead in addressing injury and coordinating agencies and organizations which conduct injury surveillance and control programs in Arizona, such as state, local and tribal police and fire departments, the Domestic Violence Coalition, Department of Public Safety and highway safety groups, poisoning and drowning surveillance and prevention groups, hospitals, schools, behavioral health agencies, and various community and school-based programs. Through continuing communication and cooperation, community and state groups will lead the way in reducing injury in Arizona.

<sup>1</sup> Planning Comprehensive Injury Surveillance in State Health Departments Working Group. *Consensus Recommendations of Injury Surveillance in State Health Departments*. State and Territorial Injury Prevention Directors' Association. Sept 1999. <http://www.stipda.org/>

## **SECTION II: GENERAL CONSIDERATIONS**

### **Common Issues**

Because the following issues apply to each of the injury topics and to the injury problem as a whole, they have not been addressed separately in each chapter except where specifically necessary. They represent Departmental concerns in general on many fronts:

- availability of resources;
- role of an advisory council and the function of partnerships;
- leadership;
- data;
- costs;
- culturally appropriate strategies;
- feasibility of interventions;
- reasonable implementation time.

### **Program Goals**

The Injury Plan covers four broad goals intended to promote the reduction of injury and to improve the quality of life of Arizona residents. These goals apply broadly to the entire Plan.

- Goal 1. Provide leadership and resources to support the state's Injury Plan.
- a. Since ADHS injury control activities exist in multiple locations, create a structure to coordinate these activities, with the Bureau of Emergency Medical Services (BEMS) serving as a focal point.
  - b. Continue a multi-bureau Injury Internal Work Group within the Department.
  - c. Coordinate the Injury Plan with the Emergency Medical Services and Trauma System Plan.
  - d. Establish a reasonable level of support using outside funding opportunities, partnering with bioterrorism programs, and seeking core staff.
  - e. Appoint an Injury Advisory Council to facilitate implementation of the Plan.
- Goal 2. Obtain and utilize consistent data from reliable sources to drive policy.
- a. Prepare mortality and data templates for use in Injury Prevention and Control.
  - b. Increase e-coding completeness and accuracy by feedback to hospitals and by training of hospital records technicians.
  - c. Establish ED reporting rules and assure access to analyzable data from the Trauma Registry.
  - d. Establish evaluation strategies to assess progress in reducing injuries.



- Goal 3. Formulate policy and enact legislation which will support the Plan and provide a healthier state in which to live and work.
- a. Balance personal responsibility and societal responsibility, promoting individual awareness and legislative interventions.
  - b. Develop reliable data on costs of injury in Arizona to support the argument that injury control will benefit all residents.
- Goal 4. Formulate collaborative partnerships among community-based groups, agencies and organizations.
- a. Promote and facilitate communication among partners in the injury prevention effort, with regular meetings and facilitating a State Injury Coalition.
  - b. Include representation of target groups on the Injury Advisory Committee to assure interventions are appropriate to the target populations.
  - c. Research effectiveness of interventions related to cultural attributes.
  - d. Assure participation from a wide range of jurisdictions (federal, tribal, state, and local agencies and corporate as well as non-profit agencies).
  - e. Invite University participation to tap into resources such as graduate degree programs in Public Health, internships and community learning experiences.

## **SECTION III: INTRODUCTION TO TOPICS**

### **Introduction**

Nine of the following ten chapters present the 14 categories of injury or risk behaviors identified by the State and Territorial Injury Prevention Directors' Association (STIPDA) as categories to be addressed by a state's injury prevention plan. The tenth discusses Violence Against Women, an increasingly important cause of injury and death, not only in Arizona, but also in the US as a whole. These chapters provide background information and propose specific actions to address the injury problem.

### **Prevention Strategies**

Specific objectives, strategies and action steps have been compiled in a matrix accompanying each chapter. Each of the chapters has at least one objective related to data, reflecting the importance of this aspect of injury control. The overarching issues described in Section II are both implicit and explicit throughout each chapter. These issues apply whether or not a specific objective has been formulated.

Within any community are many dedicated people and effective programs already targeted at reducing injury. Through the interventions proposed in this plan it is hoped that these efforts will grow and reinforce each other. Only those objectives feasible in the next three to five years have been included, but partners would set their own timetables.

### **AN IMPORTANT NOTE ABOUT DATA GRAPHS AND TABLES.**

#### **Death Data**

When the injury control planning project first began in 2000, the latest data available at that time were Arizona's 1999 death data, coded to the International Classification of Disease, Ninth Revision (ICD-9). For the sake of continuity, those original data codes have been retained for most injury topics. However, for deaths occurring in 2000 and subsequent years, data coded to the ICD-10 are utilized. For most injuries, the transition to this newer coding system is still being made. While the reader should be aware that the two systems (ICD-9 and ICD-10) are used intermittently in this report, in future years all mortality data will be converted into the newer (ICD-10) system.

#### **Hospital Data**

The use of ICD-10-CM in the hospital and emergency department setting is scheduled for implementation in Arizona in 2004. The ICD-9-CM remains as the standard for hospital coded data until this newer version is available.

#### **Difference between Data Provided by ADHS and CDC**

The databases used by the two agencies are slightly different, are accessed at different points in time, and may contain different numbers of records. Also, the denominators used by the two agencies in calculating rates may differ. Generally, however, the resulting counts and rates provided by the two agencies do not differ in ways that affect conclusions to be drawn from the data.

## Chapter 1: Motor Vehicle Injuries

### Background

Motor vehicle-related injury and death is a major public health problem in Arizona. The Motor Vehicle Crash Facts for 2000 (Arizona Department of Transportation) shows that there were 131,368 reported crashes during that year. More than 76,000 people were injured non-fatally and 1,036 received fatal injuries. Of these, 266 deaths were related to alcohol in some way. The Centers for Disease Control Injury Atlas shows that 252 excess motor vehicle-related deaths occur every year in Arizona compared to the United States.

These figures translate to nearly 154 injuries per 100 million vehicle miles traveled and more than two deaths per 100 million vehicle miles traveled. All persons injured or killed on Arizona roads, regardless of their state of residence, are included in these estimates. Economic losses totaled \$ 2.7 billion in 2000 due to motor vehicle crashes in Arizona (Motor Vehicle Crash Facts for 2000). In 1999, injury crashes accounted for 43% of such losses, fatal crashes accounted for 37% and property damage accounted for the remaining 20%. Cost estimates are based on an estimated average cost of crashes, injuries, and deaths. These estimates include: losses due to wages and productivity, employer expenses, medical expenses, administrative expenses, and motor vehicle damage.

The tremendous geographic and demographic variation in Arizona influences the risk of motor vehicle-related injury and the deployment of successful injury prevention programs. There are over 6,000 miles of public roads in Arizona, and the state shares a 300-mile boundary with Mexico, creating unique opportunities for addressing border safety issues. About 90% of Arizona highways are in rural areas, where 19% of all crashes and 58% of crash fatalities occur. There is a 75 mile per hour speed limit on many of the interstate highways running through Arizona and many tractor trailer-trucks from Mexico enter Arizona under the North American Free Trade Agreement (NAFTA). These factors create a unique environment in which to implement and evaluate prevention strategies aimed at motor vehicle-related injury and death. Figure 1 and Figure 2 show the trends in injury and deaths due to motor vehicle injury.

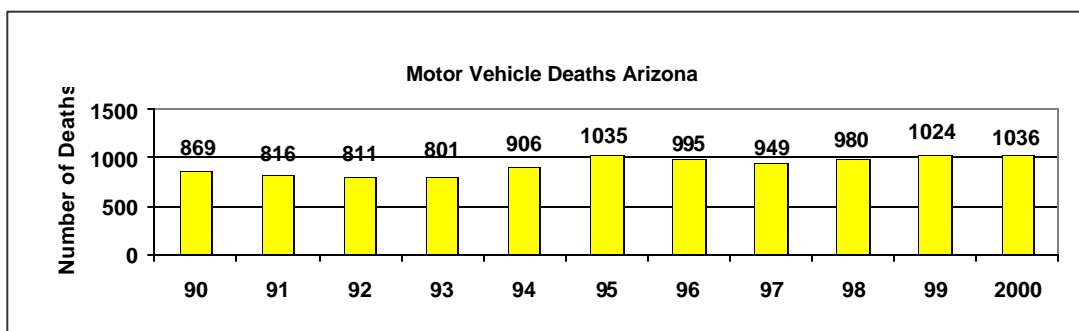


Figure 1. – Deaths from Motor Vehicle Crashes in Arizona 1990-2000.

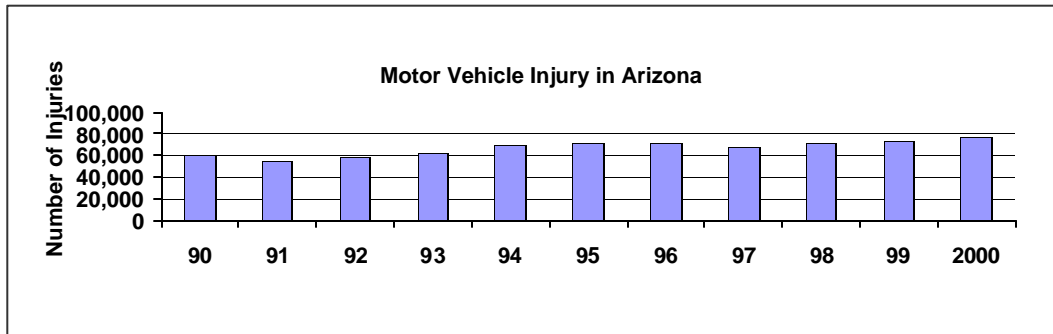


Figure 2. – Motor Vehicle Injuries in Arizona 1990-2000.

Alcohol-related motor vehicle crash deaths have been fairly constant over the last six years (Figure 3). However, alcohol-related crashes were responsible for 26% of the deaths from only 7% of the crashes.

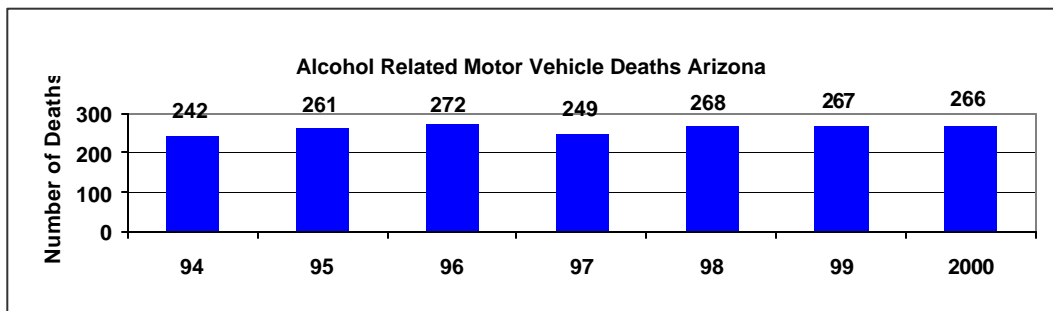


Figure 3. – Alcohol-Related Motor Vehicle Deaths in Arizona 1994-2000.

Although total numbers of deaths have risen with the population, motor vehicle death rates have shown a slight decrease in the last ten years (Figure 4).

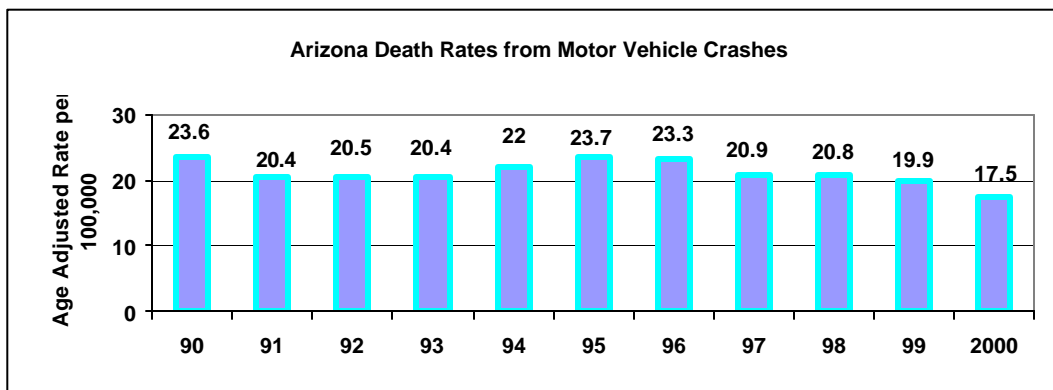


Figure 4. – Age-Adjusted Deaths from Motor Vehicle Crashes in Arizona 1990-2000.

Disparities in mortality from motor vehicle injury among races and ethnicities are illustrated in Figure 5. The Native American mortality rate is nearly three and one half times greater than the overall Arizona rate.

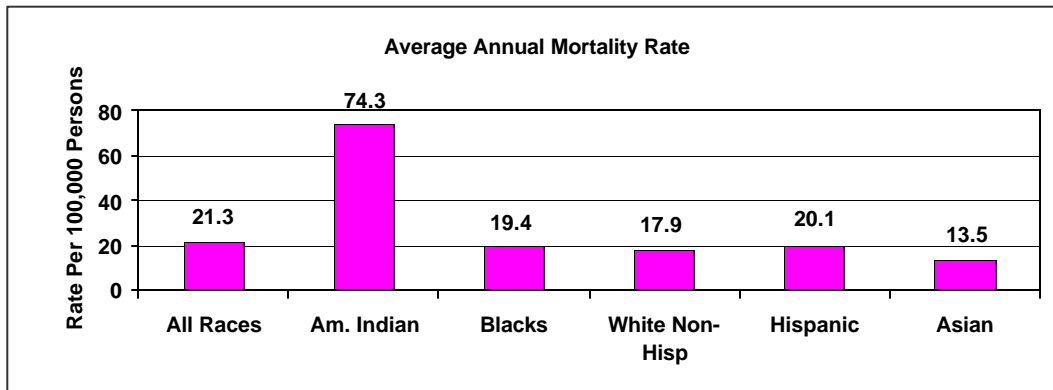


Figure 5. – Average Annual Mortality Rate from Motor Vehicle Injury in Arizona 1990-2000.

### Summary/Highlights of Data

- Arizona had a motor vehicle mortality rate in 2000 of 17.5% per 100,000 population.
- Motor vehicle crashes are the leading cause of death due to injury in Arizona.
- The number of motor vehicle injury crashes in Arizona increased by 23% from 1994 to 2000.
- Native Americans make up a disproportionate share of motor vehicle fatalities in Arizona (17.85% of motor vehicle fatalities but only 5.2% of the population).
- American Indian mortality from motor vehicle injury is more than three times the rate in Arizona as a whole.
- Arizona's motor vehicle mortality rate has decreased by 45% from 1980 to 2000 (31.7% per 100,000 to 17.5% per 100,000).
- Rural crashes accounted for 19.4% of all Arizona crashes in 1999, but resulted in 57.9% of the fatalities.
- Alcohol-related crashes in Arizona resulted in 266 persons killed and 7,007 persons injured in 2000.
- Alcohol-related motor vehicle crashes in Arizona comprised 7% of all motor vehicle crashes but resulted in 26% of all motor vehicle-related deaths.

Data systems used for evaluating motor vehicle injury in Arizona vary in location and ownership. Death certificates provide much of the information on motor vehicle deaths. The hospital discharge data set provides diagnosis and procedures pertaining to persons that were hospitalized for injury. Information about crashes is primarily held in police records, which may or may not be computerized and accessible. Other places that contain some of this information include the Fatality Analysis Reporting System of the Arizona Department of Transportation, the statewide Trauma Surveillance System, the Behavioral Risk Factor Survey, and the Child Fatality Review Team Analysis. Other data sources are presently being developed, including data from pre-hospital and emergency departments and the Youth Behavioral Risk Surveillance System. Other data sources that could be of use in future years include Medical Examiners or Coroners.

## Major Gaps in Data

1. Motor vehicle crash information is not routinely collected on American Indian Reservations.
2. Youth risk behaviors are not collected in Arizona.
3. Ambulance transport data about injury is not systematically reported in Arizona.

## Legislation and Prevention

Prevention of motor vehicle injury and death has been a primary effort for many years. One of the methods used to prevent these injuries is enacting laws. The following is a summary of the Arizona laws for the prevention of motor vehicle injury and death.

A. **Speed Limits** (*Arizona State Legislature, 2001, A.R.S. §28-702.04 and A.R.S. §28-709*) The speed limit for automobiles in sections of interstate highways in rural areas (defined as a population of 50,000 or fewer persons) is 65 mph, with lower speed limits allowable as deemed necessary. Motorized vehicles with a gross weight of more than 26,000 pounds, excluding those designed for carrying 16 or more occupants, and vehicles drawing a pole trailer weighing at least 6,000 pounds have a speed limit of 55 mph. Higher speed limits (75 mph) are posted if it is determined that greater speed is conducive to safe and orderly traffic.

B. **Safety Belt Use** (*Arizona State Legislature, 2001, A.R.S. §28-909*) Arizona's safety belt law has not been amended since it took effect on January 1, 1991 (Governor's Office of Highway Safety, personal communication, May 2001). It is a secondary enforcement law. Occupants are cited for non-use only if the vehicle is stopped for another motor vehicle violation. A driver must require front-seat passengers under the age of 16 years to wear a seat belt. Insurers cannot take violations of the mandatory seat belt law into account when establishing rates or renewing policies. The maximum fine for a first offense is \$10.00. The mandatory safety belt law does not apply to:

- Children (under 5 years) who are subject to child restraint laws;
- A person with a written statement from a physician stipulating that he/she is not able to wear a safety belt for medical or psychological reasons;
- United States Postal Service letter carriers performing job duties.

C. **Child Restraints** (*Arizona State Legislature, 2001, A.R.S. § 28-907*) Arizona's law is a primary enforcement law, covering children under the age of 5 years. The law does not specify the type of restraint system to be used. The driver is responsible for complying with the law, regardless of whether or not he/she is the child's parent or guardian. There is a \$50.00 fine for each violation. The violator will not be liable for the fine if he/she can furnish a receipt indicating the purchase of a child passenger restraint system. The child restraint law does not apply to:

- Drivers of motor vehicles originally manufactured without passenger restraint devices;
- Campers and motor homes;

- Drivers of commercial motor vehicles who have commercial licenses;
- A child being transported to obtain emergency medical care;
- Drivers transporting more than one child in a vehicle with a passenger area that is too small to accommodate the required number of child restraints, provided that as many children are properly restrained as is reasonable given the circumstances.

**D. Helmet Use for Motorcyclists** (*Arizona State Legislature, 2001, A.R.S. § 28-964*)

Operators and passengers younger than 18 years old must wear a helmet. Operators must wear protective goggles, glasses, or a face shield. The law does not specifically state whether this only applies to operators under the age of 18.

**E. Helmet Use for Bicyclists** (*Insurance Institute for Highway Safety, 2001 Helmet Use Laws*). There is no statewide law. The city of Tucson has an ordinance (Section 20-29) stating that all bicyclists under the age of 18 years must wear helmets (City of Tucson 2001). Yuma and Sierra Vista also have similar ordinances (Coalition for Arizona Bicyclists, personal communication, May 2001).

**F. Driving Under the Influence** (*Arizona State Legislature, 2001, HB2182*)

Effective September 1, 2001, the threshold for legal intoxication decreased from 0.10% to 0.08% blood alcohol content (BAC). A second bill, also signed into law in 2001, lowered the blood alcohol content threshold for extreme Driving Under the Influence (DUI) from 0.18% to 0.15% (Arizona State Legislature, 2001, SB1137). If a driver refuses a blood alcohol test, his/her license is suspended for 90 days (1<sup>st</sup> offense). There is a zero-tolerance policy for 18, 19, and 20 year olds convicted of driving under the influence of alcohol. Driving privileges will be suspended or refused for two years regardless of blood alcohol level (Arizona State Legislature, 2001, HB2053). The motor vehicle division of the Arizona Department of Transportation is required to install ignition interlock devices on motor vehicles operated by persons who are convicted of a second DUI offense within six months of their first offense or persons convicted of extreme or aggravated DUI for any offense.

**G. Riding in Cargo Areas of Trucks**

There is no legislative prohibition.

**H. License Renewal** (*Arizona State Legislature, 2001, A.R.S. § 28-3171*)

Drivers do not need to renew their licenses until age 65. After age 65, drivers must renew every 5 years.

**I. Graduated Licensing for New Drivers** (*Arizona State Legislature, 2001, A.R.S. § 28-*

*3154*). The minimum age to obtain a learner's permit is 15 years, 7 months. The required holding period is 5 months. A minor under the age of 18 can qualify for a restricted class G driver's license. In order to qualify, the driver must undergo a minimum of twenty-five hours of supervised driving, including five nighttime hours. After obtaining a license, there are no restrictions on nighttime driving or on the maximum number of passengers (Insurance Institute for Highway Safety, 2001 United States Licensing System for Young Drivers).

- J. Use of Electronic Devices while Driving** (*Arizona State Legislature, 2001, A.R.S. § 28-963*). There is a prohibition on persons watching television while driving.
- K. Violations Resulting in Serious Injury or Death** (*Arizona State Legislature, 2001, A.R.S. § 28-672*). The maximum fine for a violation resulting in serious physical injury is \$500. The maximum fine for a violation resulting in death is \$1,000. The violator may be ordered to perform community service.
- L. Running Red Lights** (*Arizona State Legislature, 2001, HB2277*)  
In April of 2001, a bill was signed into law that requires that a driver who is cited for running a red light attend traffic school.
- M. Laws Governing Left-Hand Turns** (*Arizona State Legislature, 2001, A.R.S. § 28-772 and A.R.S. § 28-751*). A driver making a left turn at an intersection must yield to a vehicle approaching from the opposite direction. A driver making a left turn must enter the extreme left-hand lane before making the turn. If possible, the turn is to be made from the left of the center of the intersection, and the driver will enter the left lane of the street he/she is turning into.
- N. Restraint Usage Rates**  
Reported shoulder belt use for front seat occupants was estimated at 74.3% in 2000 (*Governor's Office of Highway Safety, 2000*). State surveys were conducted using NHTSA-issued guidelines. These guidelines require direct observation and do not allow for the use of secondary sources (e.g., telephone surveys or police crash reports) to gather information. They require that surveys use probability-based sampling procedures, and also that the areas of the state with the highest population concentrations be included in the sampling. Surveys also had to be conducted on all days of the week and during all daylight hours (*National Highway Traffic Safety Institute, 1999*).
- O. Motor Vehicle Insurance System**  
Arizona law (*A.R.S. § 28-4009 and 20-262*) requires that owners carry a minimum of \$15,000 for death or bodily injury to a single person in a single incident, and \$30,000 for death/bodily injury to two or more persons in one incident, and \$10,000 for property damage. Drivers aged 55 years or older may have auto insurance premiums reduced if an approved driver improvement course was completed within the past 3 years.

## **Current Interventions**

Prevention efforts to reduce motor vehicle deaths and injuries have been a high priority in Arizona for many years. Interventions range from media spots to prevent drunk or reckless driving to drivers' education in schools throughout the state. One of the most recent was a news station teaching mothers how to install baby seats in the car. Interventions are often community based and may include lectures to youth in schools, meetings of MADD or SADD groups, and local law enforcement traffic stops to prevent drunk driving. Interventions are dispersed among various agencies and are limited in resources. ADHS recognizes the need to support and coordinate these efforts statewide.



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Arizona Department of Transportation. *Motor Vehicle Crash Facts for 2000*.

Centers for Disease Control. US Dept. of Health and Human Services, Public Health Services. *Injury Mortality Atlas of the United States, 1979-1987*.

*Arizona Department of Health Services, Arizona Health Status and Vital Statistics, 2000.*

Arizona Department of Health Services, *Injury Mortality Among Arizona Residents, 1990-2000*.

Arizona Governor's Office of Highway Safety web site: [www.azgohs.state.az.us](http://www.azgohs.state.az.us)

National Center for Injury Prevention and Control web site: [www.cdc.gov/ncipc](http://www.cdc.gov/ncipc)

Injury Name: Motor Vehicle Injuries			
Objective #1: Ensure Adequate Data Surveillance of Motor Vehicle Injuries			
Strategic intervention	Key partners	Action steps	
1) Adopt an accepted criteria for the collection of crash data	U of A CODES Project Arizona Department of Health Services – Bureau of Emergency Medical Services (ADHS - BEMS) Arizona Department of Transportation (ADOT)	Use NHTSA criteria Support ADOT use of NHTSA criteria	Lead party
2) Institutionalize CODES crash data	U of A CODES Project ADHS Governor's Office of Highway Safety (GOHS)	Develop strategies for use of the data Find funding for continuation of the project	ADHS ADOT
3) Collect and analyze statewide EMS data (i.e. trauma and transportation)	ADHS –BEMS Ambulance Providers Governor's Traffic Safety Advisory Council (GTSAC) Hospitals	Adopt program and process for data collection (e.g. federal 81 elements) Fund process Legislate requirement (rule)	ADHS ADOT, BIA and Tribes
4) Collect and analyze statewide Emergency Department and Outpatient Clinic data	ADHS Hospitals	Establish rules (legislation) Select data collection system Collect, edit and analyze data	
5) Collect statewide Medical Examiner Data	Arizona Medical Examiners ADHS GOHS	Meet with ME's on need, Format Develop a process for data collection	
6) Encourage Tribes to collect and share motor vehicle injury data	Arizona NA Tribes ADHS Inter-Tribal Council of Arizona (ITCA) ADOT	Meet with Tribes on need for the data Create a coordinated plan with the tribes	

Baseline: Existence of CODES, EMS, Emergency Department and Outpatient Clinic, Medical Examiner data systems.

Target: Statewide institutionalization of CODES system, statewide collection of EMS, Emergency Department and Outpatient Clinic, Medical Examiner data, and collection and sharing of Native American data.

Evaluation Method: Observed knowledge of implementation of statewide institutionalization of CODES system, statewide collection of EMS, Emergency Department and Outpatient Clinic, Medical Examiner data, and observed knowledge of collection and sharing of Native American data.

Injury Name: Motor Vehicle Injuries			
Objective #2: Improve Driving Environment			
Strategic intervention	Key partners	Action steps	Lead party
1) Identify locations within the state that are at high risk for motor vehicle injuries.	ADOT Federal Highway Administration Office of Safety, Red Means Stop Coalition	Review ADOT data for high-risk road areas. Contact MAG Convene key partners and interested parties to determine actions.	ADHS ADOT
2) Encourage improvement of high risk areas within tribal lands	ADOT, Bureau of Indian Affairs (BIA) Roads Department, Tribal governments (Roads Department)	Review data for high-risk road areas. Convene key partners and interested parties to determine actions.	ADHS ADOT, BIA and Tribes

Baseline: High-risk areas data kept by ADOT, Federal Highway Administration Office of Safety, and Tribal Governments.

Target: Identification of all high-risk areas throughout Arizona, including Indian reservations.

Evaluation Method: Documentation of implementation of centralized database for high-risk areas including Indian reservations. Use and sharing of collected information.

Injury Name: Motor Vehicle Injuries			
Objective #3: Increase Use of Personal Protective Equipment			
Strategic intervention	Key partners	Action steps	Lead party
1) Establish a primary seatbelt law in Arizona	Legislature ADHS GOHS	Propose legislation	GOHS ADHS
2) Expand programs for education in child restraint installation	ADHS GOHS Police Departments Fire Departments	Develop education module Use nationally recognized, effective materials Create programs to use the module Fund the program	ADHS
3) Establish a statewide helmet law	GOHS AzPTA Legislature	Propose legislation Assess reasons for non-compliance	GOHS ADHS
4) Establish a law to insure that no children are unrestrained in the back seat or bed of a pickup	GOHS ADHS GTSAC AzPTA Legis lature	Propose legislation Media reinforcement Evaluate results Assess reasons for non-compliance	GOHS ADHS
5) Encourage adoption of appropriate seatbelt and child restraint laws on tribal lands.	Arizona NA Tribes ADHS GOHS ITCA AzPTA	Meet and discuss needs with tribal leaders Create model legislation	ITCA

Baseline: No primary seatbelt law, no statewide helmet law, and no law requiring children to be restrained in the back seat or bed of a pick-up truck in Arizona.

Target: Establishment of primary seatbelt law, statewide helmet law, and law requiring children to be restrained in the back seat or bed of a pick-up truck.

Evaluation Method: Observed passage of these laws by the Arizona State Legislature and Indian tribal governments.

Injury Name: Motor Vehicle Injuries			
Objective #4: Reduce Motor Vehicle Injuries Related to Driver Impairment			
Strategic intervention	Key partners	Action steps	Lead party
1) Increase awareness of hazards of sleep deprivation and other distractions to driving.	ADOT Traffic Safety School ADHS Media	Data review Program development Implementation	ADHS
2) Increase awareness of road rage.	ADOT ADHS GOHS Media	Data review Program development Implementation.	ADHS
3) Zero tolerance of alcohol or drug impairment for all age groups.	ADOT ADPS GOHS Students Against Destructive Decisions (SADD) Mothers Against Drunk Driving (MADD)	Data review Program development Implementation	ADPS Local law enforcement agencies
4) Expand and assess programs for the identification and treatment of impaired drivers.	ADOT ADPS SADD MADD	Data review Program development Implementation	ADHS
5) Ensure and increase on-going law enforcement efforts with respect to impaired drivers.	ADOT ADPS MADD GOHS	Data review Program development Implementation	ADHS

Baseline: Limited or no programs aimed at awareness of the hazards of sleep deprivation and other distractions to driving, road rage, identification and treatment of impaired drivers.

Target: Reduction of number of motor vehicle accidents caused by sleep deprivation, other driving distractions, road rage, and impaired drivers.

Evaluation Method: Motor vehicle injury statistical data.

Injury Name: Motor Vehicle Injuries			
Objective #5: Reduce Motor Vehicle Injury Related Death and Disability			
Strategic intervention	Key partners	Action steps	Lead party
1) Improve EMS response for Motor Vehicle Incidents	ADHS – BEMS Universities ADOT	Evaluate EMS response data Coordinate on-going meetings with all providers to improve response.	ADHS - BEMS
2) Pursue enhanced graduated driver's licensing law.	ADHS GOHS Legislature ADOT	Create legislation	ADOT
3) Develop media spots to remind drivers of bicyclists and pedestrians	ADHS GOHS	Work with AZ Broadcasters Association Develop media spots Fund showing of spots	ADHS

Baseline: EMS motor vehicle accidents response data, no Arizona graduated driver's licensing law, and limited or no media spots reminding drivers of bicyclists and pedestrians.

Target: Improved EMS motor vehicle accidents response times, passage of statewide graduated driver's licensing state law, establishment of media spots reminding drivers about bicyclists and pedestrians.

Evaluation Method: Compare current and post intervention EMS statistical response times data, passage of statewide graduated driver's licensing law by state Legislature, and creation of media spots reminding drivers of bicyclists and pedestrians.

## Chapter 2: Homicide

### Background

Although not ranked in the top ten causes of death when considered across all ages and ethnic groups, 1999 comparisons show that homicide is the second leading cause of all deaths among 15 to 24 year-olds both in the United States and in Arizona (Figure 1). It is the first cause of death for African Americans in that age group in Arizona. However, homicide has dropped to fourth among causes of all deaths among Arizona children from 10-14, compared to being third in the US for that age group.

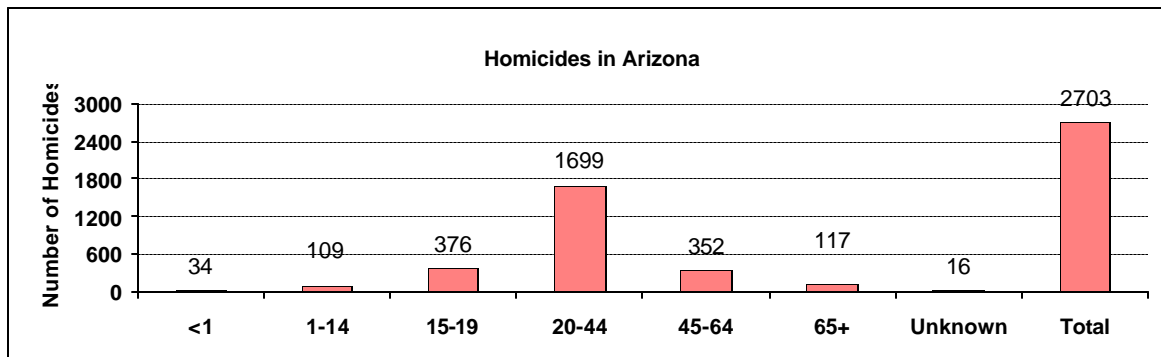


Figure 1. - Homicide Deaths by Age Group in Arizona 1995-2000.

Males accounted for 11.1 homicide victims per 100,000 Arizona population, compared to 3.8 females. All minorities were at greater risk for homicide than were whites, with African Americans 5.7 times more likely to die from such assault, compared to 4.6 times for American Indians and 3.7 times for Hispanics. Asian risk is equal to that in Arizona for all groups (Figure 2).

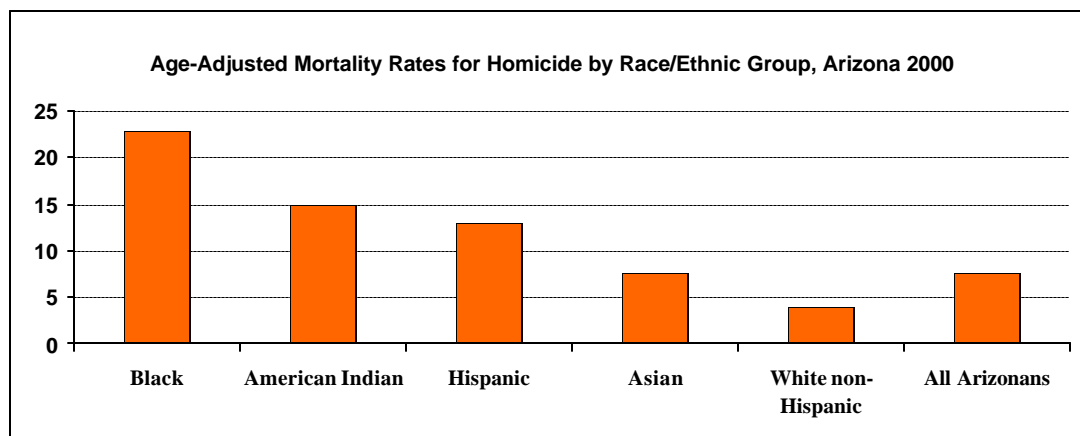


Figure 2. - Age-Adjusted Mortality Rates for Homicide by Race/Ethnic Group in Arizona 2000.

Since 1994, the homicide death rate in Arizona has exceeded the US rate, with a major peak in 1995 (Figure 3). Although homicide rates have been declining, in 2000 the Arizona rate was still quite high at 7.6% per 100,000 population. The goal set for Arizona has been to reduce the rate to no more than 7.2% per 100,000 population (age-adjusted).

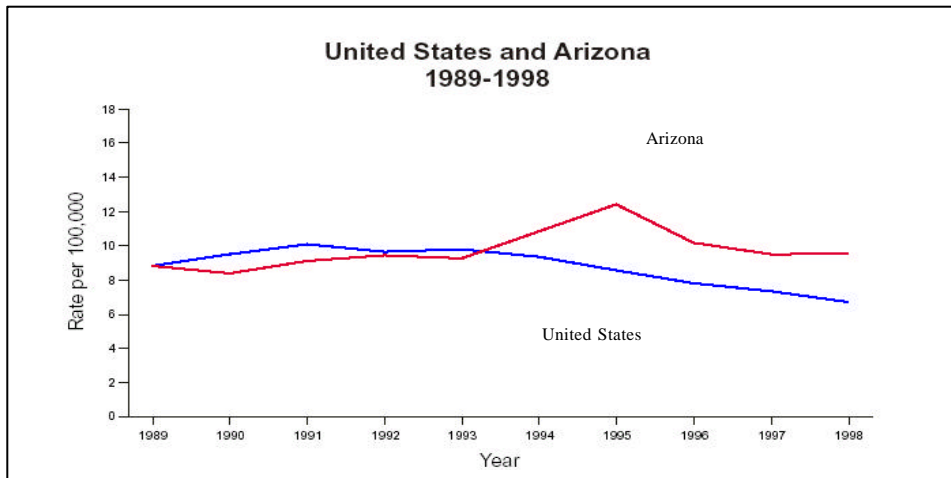


Figure 3. - Homicide Death Rates: United States and Arizona, 1989-1998.

In 1997, homicide accounted for more than fifty percent of violence-related deaths for children (Figure 4). The Arizona Child Fatality Review Team reports that 50.4% of these deaths could have been prevented through limiting access to guns, use of gunlocks, gang prevention and development of conflict resolution skills (also see Chapter 4, Firearms).

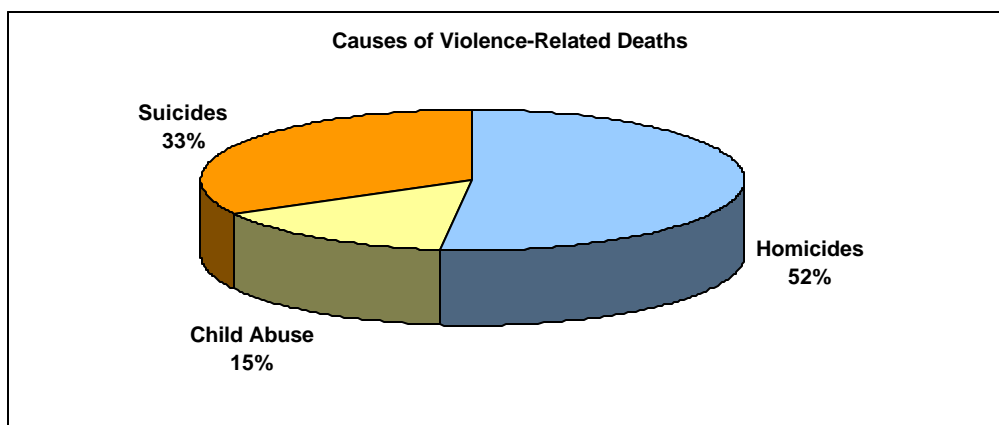


Figure 4. - Violence-Related Deaths in Arizona 1999.

### Existing Surveillance Systems

Data on homicides in Arizona are collected and reported in several ways. The main sources for homicide data include: death certificates, maintained by Arizona Department of Health Services (ADHS), which report all deaths; hospital discharge data, maintained by ADHS, which records cases admitted to the hospital and their status at discharge; and the Child Fatality Review Team, maintained by ADHS, which provides data on deaths among children ages 0-17 throughout the state of Arizona.



Nationally, law enforcement agencies report homicides to the Federal Bureau of Investigation (FBI), which in turn forwards the data to the Department of Justice. Local and state data are reported back to local and state agencies.

### **Summary/Highlights of Data**

- In 1999, homicides accounted for more than 50 percent of violence-related deaths among children (Figure 4). An estimated 50.4% of these deaths could have been prevented.
- Arizona's homicide death rate ranked 10<sup>th</sup> in the United States (1996-1998).<sup>1</sup>
- Since 1995, homicide rates in Arizona have been declining (14.2% per 100,000 in 1995 to 7.6% per 100,000 in 2000), but despite this decline Arizona's rate is still higher than the United States rate and above the 7.2% target set by Arizona 2000, Plan for a Healthy Tomorrow.<sup>2</sup>
- Homicide accounts for 3.3 percent of all preventable deaths in Arizona.
- In the year 2000, there were 394 deaths due to homicide in Arizona.<sup>3</sup>
- Of the 35 homicides among children ages 1-19 in 1999, 25 (71.4%) resulted from gunshot wounds (also see Chapter 4, Firearms).
- Homicides among children from 1-19 years of age account for 13.9% of the total homicide deaths from 1995-2000. However, 72.5% of these occur between the ages of 15-19.
- More than 70% of homicides are committed with firearms.
- Homicide rates in Arizona are highest among African Americans.
- Arizona had the 6<sup>th</sup> highest rate of intimate partner homicide among white females in the United States from 1981-1998 (also see Chapter 5, Violence Against Women).
- Homicide may result from any of the following types of violence:
  - Gun violence;
  - Domestic violence;
  - Intimate partner violence;
  - Child abuse;
  - Gang-related violence;
  - Drug-related violence.

### **Major Gaps in Data**

1. Death certificate inconsistencies - facts of deaths may be inconsistent with cause of death and coding of cause of death may not be consistent.
2. Data are not linked among the different agencies.
3. State and local data analyzed and reported nationally take up to a year or more for reports to be received.

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<sup>1</sup> CDC State Injury Profile for Arizona

<sup>2</sup> Injury Mortality Among Arizona Residents

<sup>3</sup> Advanced Vital Statistics by County of Residence Arizona, 2000 Report

## Current Interventions

Currently there are several agencies that include homicide in their routine reports. The Department of Public Safety publishes a yearly *Crime in Arizona Report*, which includes incidents of homicide. The Child Fatality Review Report, published through ADHS, include homicides among children. Reduction of homicide is an objective in the *Healthy Arizona 2010* plan.

## References

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United States Department of Health and Human Services. Centers for Disease Control and Prevention. *State Health Profile- Arizona 2000*

Bureau of Justice Statistics web site: [www.ojp.usdoj.gov/bjs](http://www.ojp.usdoj.gov/bjs)

Injury Name: Homicide			
Objective #1: Improve Data Concerning Homicides			
Strategic Intervention	Key partners	Action steps	Lead party
1) Promote collaborative efforts to analyze homicide data	Law Enforcement Department of Public Safety ADHS Child Fatality Review Team Child Protective Services ACADV	Develop strategies to share data among agencies Analyze homicide data to determine areas at greatest risk Identify highest rates per area Review methods frequently used Identify age group most at risk Identify areas of disparities	ADHS

Baseline: There is no link among agencies reporting homicide data. Data submitted nationally for analysis are delayed at least a year.

Target: Linkages among agencies reporting homicide data within the state.

Evaluation method: Documented sharing of information and analyses.

Injury Name: Homicide			
Objective #2: Reduce Deaths Due to Homicides			
Strategic Intervention	Key partners	Action steps	Lead party
1) Promote and enhance community-based initiatives aimed at reducing violent behavior	Law Enforcement Department of Public Safety ADHS Local Communities Child Protective Services Arizona Firearm Safety Coalition ACADV	Collaborate with communities identified with highest rates to develop ways to reduce rates Conduct focus groups to determine needs	ADHS Local Communities
2) Develop educational campaigns that address ways to reduce homicide	ADHS Local Communities Law Enforcement Child Protective Services Arizona Firearm Safety Coalition ACADV	Develop campaign materials PSA, educational materials	ADHS Local Communities

Baseline: Homicide rates have been decreasing and are about 7.6/100,000

Target: No more than 7.2 homicides per 100,000 populations

Evaluation method: Current report mechanisms over the next five years.

## Chapter 3: Suicide and Suicide Attempts

### Background

Suicide, the act of taking one's own life, is the eighth leading cause of death in Arizona. The incidence of suicide attempts reaches a peak during the mid-adolescent years. Mortality from suicide, which increases steadily through the teens, becomes the third leading cause of death for that age group and second for ages 25-34.

Each year an average of 800 people die from suicide in Arizona, and an average of 2,600 persons are admitted to the hospital because of suicide attempts. For the last ten years, the suicide mortality rate has been higher in Arizona compared to the United States for all age groups. Suicide rates increase with age and are highest among Americans aged 65 years and older. The suicide rate among people ages 65 and older was significantly higher in Arizona than the U.S., with a rate of 23.2 per 100,000 compared to the U.S. rate of 15.9 per 100,000 in 1999.

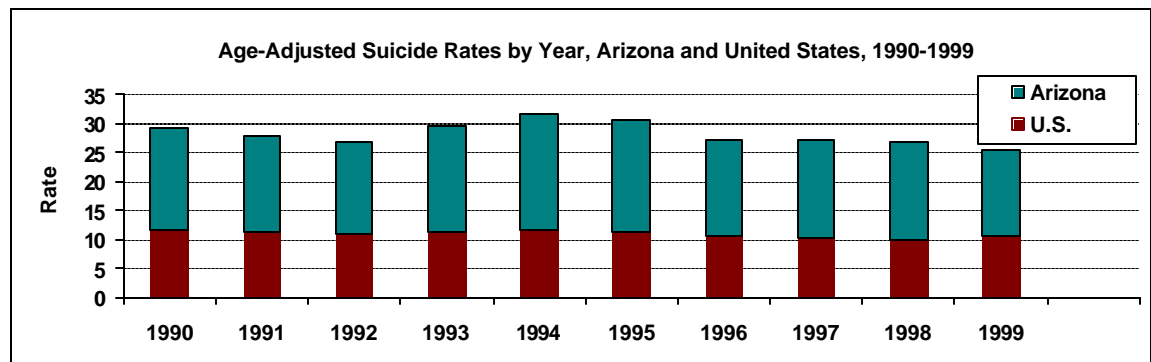


Figure 1. – Age-Adjusted Suicide Mortality in Arizona and United States, 1990-1999

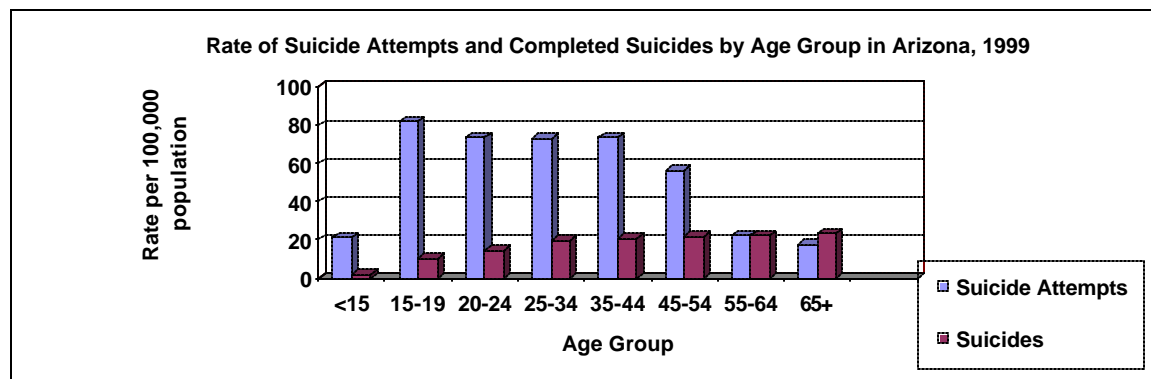


Figure 2. – Arizona Attempted Suicide and Suicides by Age Group in Arizona 1999

### Existing Surveillance Systems

Data on suicide and attempted suicide are collected via Death Certificates, Child Fatality Review, and Hospital Discharges. All are mandated reporting systems. All deaths in the state are included in Vital Statistics, but injuries due to suicide are reported only from nonfederal hospitals. Federal facilities and Veterans hospitals, such as those on the Indian

reservation, do not report data routinely. Children from 0 to 17 years of age are included in the Child Fatality Review. The data systems lag up to a year in providing information.

### **Major Gaps in Data**

1. Suicide deaths are under-reported or may be mis-coded.
2. Suicide attempts are only identified through hospital discharge, limiting the information to nonfederal facilities. At this time, emergency department information is not part of this reporting process.
3. There is no systematized reporting system for suicide attempts.
4. Although Native Americans have the highest suicide mortality rate, there is no mechanism in place to account for the number of attempts.

### **Summary/Highlights of Data**

- Suicide in Arizona is one of the first three leading causes of death among youth 19 years of age and younger.
- Suicide rates in Arizona in 2000 were substantially higher among the White non-Hispanic group (16.7% per 100,000) and American Indians (16.2% per 100,000), than they were among Hispanics (7.2%), Blacks (6.5%), and Asians (5.7%).
- Reports from both national and local statistics identified firearms as the leading method of suicide in the United States. Six of every ten suicides in America are by firearms. This method is common among genders, all racial groups and all ages. In 2000, 66% of suicides in Arizona used firearms as the method.
- Although completed suicides are higher among males, females have the highest rate for attempted suicide.

### **Current Interventions**

Arizona has an active Suicide Prevention Coalition that works on a variety of activities, such as development of a media campaign, standardizing procedures for emergency rooms caring for suicide attempters, providing legislative advocacy, and planning for suicide prevention conferences in the state. The Emergency Mobile Pediatric and Adolescent Crisis Teams – Suicide Prevention Center (EMPACT-SPC) is a major provider of services for youth. The Arizona Department of Health Services, Division of Behavioral Health Services contracts with Regional Behavioral Health Authorities (RBHAs) to provide mental health services and other behavioral health services throughout the state. The Arizona Department of Health Services is also responsible for developing a statewide suicide prevention plan. In addition, many community-based programs and activities throughout the state work to prevent suicides and improve mental health of people in their communities.

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Arizona Department of Health Services. *Injury Mortality Among Arizona Residents 1990-2000*.

Mrela C. *Arizona Suicide Mortality Arizona, 1989-1999*. ADHS.

### Suicide Mortality by Means of Injury and Age Group, Arizona, 2000

	AGE <15	15- 19	20- 24	25- 34	35- 44	45- 54	55- 64	65+	Total
Firearm discharge	1	26	60	62	83	83	44	127	486
Hanging, Strangulation or Suffocation	3	9	13	25	36	14	4	8	112
Poisonings by: Drugs, Meds & Biological Substances	0	1	3	12	9	21	5	8	59
Poisonings by Gases or Vapors	0	1	3	6	9	11	4	7	41
Sharp Objects	0	1	0	2	0	1	2	3	9
Submersion/Drowning	0	0	0	0	0	0	0	3	3
Other Specified Means	2	3	4	4	8	3	2	1	27
Total	6	41	83	111	145	133	61	157	737

### Suicide Mortality by Means of Injury, Race/Ethnicity, and Gender Arizona 2000

	RACE/ETHNICITY							GENDER	
	White non-Hispanic	Hispanic	Black	American Indian	Asian	Other/Un-known	Total	Male	Female
Firearm discharge	394	61	9	16	5	1	486	432	54
Hanging, Strangulation or Suffocation	73	21	1	17	0	0	112	92	20
Poisoning by Drugs, Meds & Biological Substances	54	4	0	1	0	0	59	21	38
Poisoning by Gases or Vapors	37	1	0	2	1	0	41	31	10
Sharp Objects	7	1	0	1	0	0	9	9	0
Drowning	3	0	0	0	0	0	3	2	1
Other Specified Means	18	4	0	4	1	0	27	17	10
Total	586	92	10	41	7	1	737	604	133

Injury Name: Suicide and Attempted Suicide			
Objective #1: Reduce Suicide and Attempted Suicide in Arizona			
Strategic Interventions	Key Partners	Action Steps	Lead Party
1) Develop a public education campaign	Media BHS-Aging Coalition Crisis Hot line EMPACT-SPC Funeral Directors City Government Police/Fire Departments Adult day care workers/long term care providers	Develop Public Service Announcements (PSAs) on a variety of topics (such as eliminating the stigma associated with seeking treatment for depression, substance abuse; signs of depression, etc) for: T.V., Radio, Newspapers, Organizations/Coalition, Newsletters, Billboards. Identify and target PSAs to high-risk populations. Educate on gun safety and poison control. Increase awareness of community services available	ADHS/BHS  SPC
2) Increase the number of evidence-based suicide prevention programs in schools, colleges, and universities, work sites, correctional institutions, aging programs, and family youth and community services programs	University Research Evaluation, Department of Labor, American Association of Suicidology, Arizona Department of Education, AARP Colleges and Universities Arizona Department of Economic Security ALTCS	Identify existing suicide prevention programs Evaluate programs for effectiveness Identify resources and people to implement prevention programs	ADHS Arizona Department of Education
3) Incorporate suicide risk screening in primary care	Poison Control Center Arizona Medical Association (ArMA) School-based Health Center Council Hospital Association Community Health Centers AHCCCS College/Universities Health Centers	Incorporate risk-screening protocols in primary care and other entry areas Identify various screening tools available Outreach, training and education on use of screening tools to primary care providers	ADHS
4) Develop and/or enhance existing crisis response systems	Regional Behavioral Health Authorities (RBHAs), Emergency Medical Services (EMS) Police/Fire Departments Crisis lines: EMPACT SPC, Teen Lifeline, etc.	Identify/develop protocol for Crisis Systems throughout the state Develop standardized data collection for crisis intervention entities Evaluate the standard of care for crisis intervention (immediate referral, etc.)	ADHS/Bureau of Emergency Medical Services

5) Improve access to and community linkages with mental health and substance abuse services	Regional Behavioral Health Authorities (RBHAs) Hospital Association, Arizona Mental Health Association Arizona Department of Education, Colleges and Universities, Arizona Psychiatric Association	Evaluate the Regional Behavioral Health Authorities (RBHAs) system of accessing services statewide Identify community resources: the type of services offered and outreach activities Identify what kind of interagency referral system is in place	ADHS
6) Identify existing data sources	Regional Behavioral Health Authorities (RBHAs) Hospital Association, Emergency Rooms Crisis Lines Board of Medical Examiners	The community resource directory (see objective1), strategy 5, will provide the identification of data sources. Identify the data elements collected in each data source, limitations of the data and population served	ADHS
7) Standardize data collection for suicides and suicide attempts	Regional Behavioral Health Authorities (RBHAs) Hospital Association, Emergency Rooms Crisis Lines Board of Medical Examiners	Enhance collaboration among existing data collection groups Develop standardized data collection for suicides and suicide attempts. Provide training in data collection. Determine method of centralizing collected data, such as a violent death reporting system that includes suicides	ADHS

Baseline: The age-adjusted rate of suicide in Arizona in the year 2000 was 14.6 per 100,000.

Target: By 2005, achieve an age-adjusted rate of suicide in Arizona of 11.0 per 100,000.

Evaluation method: Utilize vital statistics records for suicide rates and hospital discharge records for suicide attempts.



## Chapter 4: Firearm-Related Injuries

### Background

Firearm-related deaths rank second, surpassed only by motor vehicles, as the leading cause of injury mortality both nationwide and in Arizona. The number of firearm-related fatalities in Arizona peaked in 1995 at 1,010, of which 140 were children from 0-19 years. By 2000 the total had dropped to 785. Nevertheless, the Arizona firearm-related death rate has exceeded the U.S. rate every year from 1989-1998.

Death caused by firearms can be categorized several ways: accidental discharge of firearm, suicide, homicide, legal intervention, or undetermined. These categories are combined below into the term “firearm-related” (Figure 1). Also see Homicide-Chapter 2, Suicide-Chapter 3 and Violence Against Women-Chapter 5 in this document.

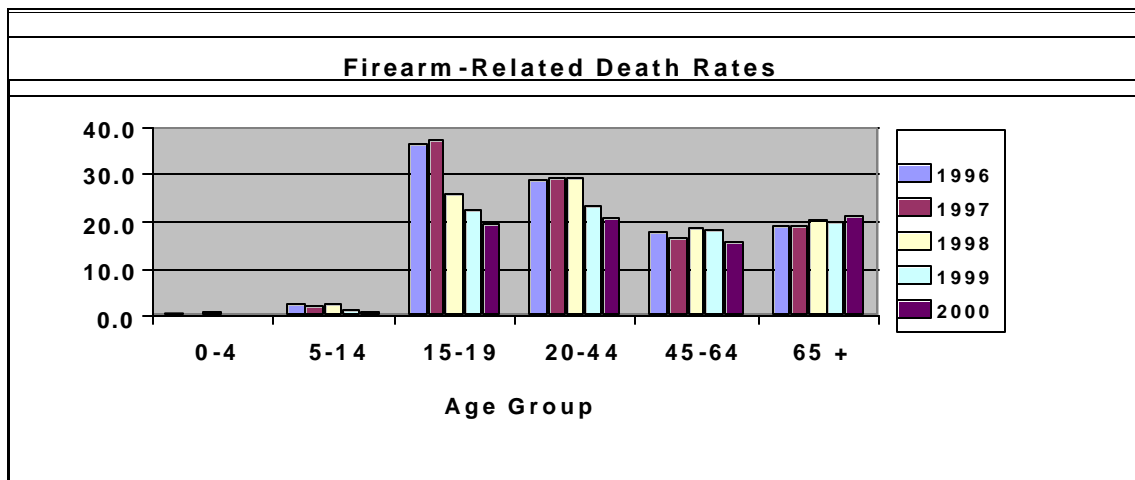


Figure 1. - Firearm-Related Deaths in Arizona 1996-2000.

Injuries from firearms affect some groups disproportionately. The firearm-related death rate among Blacks, for example, at 27.1 in 2000, is higher than in other racial or ethnic groups in Arizona. The majority of deaths from firearms occurred from acts of homicide among Blacks (80 %) and Hispanics (61.5 %) (Figure 2). Among Whites, suicide accounts for the majority of firearm deaths, being more than twice that of Blacks or Hispanics.

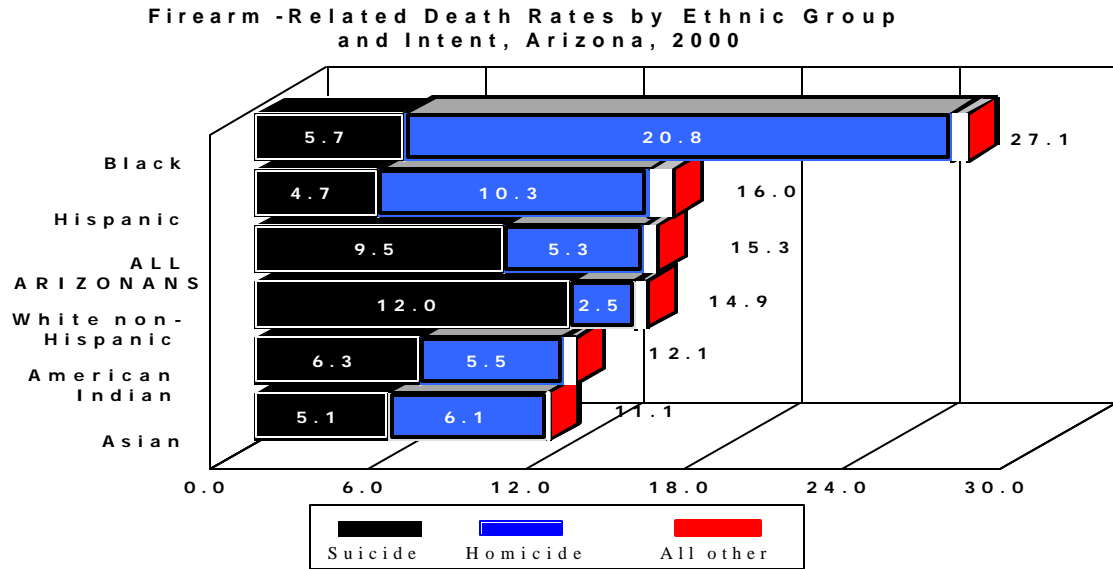


Figure 2. - Number of firearm-related deaths per 100,000 persons in specified group (unadjusted for differences in the age composition).

One of every three deaths among teenagers 15–19 years in 1998 was by firearm (86 out of 298), strongly contributing to Arizona’s high rate of suicide within this same 15–19 year old range. For all firearm deaths in 1998, Arizona adolescents in this age range were second highest among all states. However, in the same year, the highest firearm-related death rate was among Arizonans ages 20–44 years of age, totaling 480 of the 884 such deaths for 1998. In all age groups and across all ethnic categories, men are much more likely to die from firearms than are women.

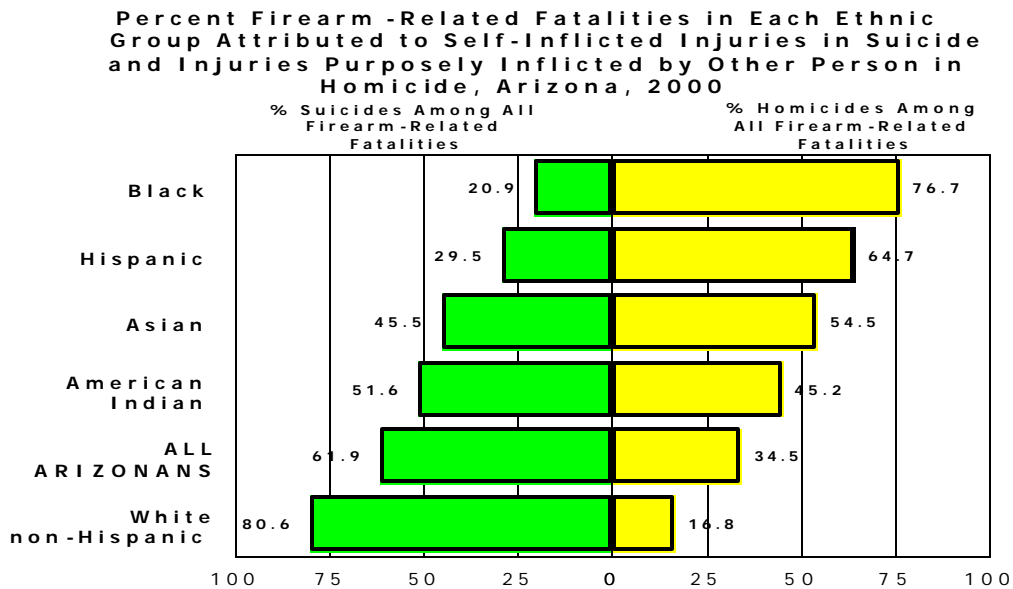


Figure 3.-Percent firearm-related injuries in each Ethnic Group

## Existing Surveillance Systems

There is no statewide, linked method of reporting or analyzing all firearm-related incidents in Arizona. Firearm-related death and injury data are reported and gathered by a variety of county and city jurisdictions including fire departments, police and sheriff departments. Local incidents are reported to the Arizona Department of Public Safety where they are reviewed and shared with selected others, including the Federal Bureau of Investigation (FBI).

Information for Vital Records on firearm-related deaths and injuries is obtained by the Arizona Department of Health Services from death certificates, Child Fatality Review Team reports for ages 0-17, and nonfederal Hospital Discharge Data under ADHS' legislative authority. Medical Examiners and coroners could also be sources for data.

## Strengths and Weaknesses of the Data Systems

A major strength of the data systems currently used is that although a number of organizations acknowledge the limitations within these systems, there is a high acceptance of the reports and data that are published. Statutory authority allows direct access by ADHS of the data systems for death certificates, Child Fatality Review Team and Hospital Discharge data. Data produced from these sources may, however, be limited by quality of data, sensitivity, and timeliness.

Firearm-related data may also be compromised by subjective classification of the circumstances of the injury or by failure to report all cases, suggesting that some cases could be missed or be under reported. In addition, reports and publications may not be timely and there is no specific statutory authority or rule for the collection and dissemination of such data.

## Summary/Highlights of Data

- The Arizona age-adjusted firearm-related mortality rate peaked in the mid 1990s (24.1/100,000 population) and now has declined to 15.3/100,000.
- The 1998 Arizona firearm-related mortality rate was 83.5 % higher than the national rate.
- The 1998 Arizona firearm-related rate was 43 % higher than the Arizona 2000 health objective of 14 weapon-related deaths/100,000.
- All but a small fraction of firearm-related fatalities are intentionally inflicted.
  - \*1.7 % are unintentionally inflicted;
  - \*34.1 % are homicides;
  - \*1.8 % are fatalities inflicted by police or other law-enforcement;
  - \*1.4 % are undetermined;
- The firearm-*suicide* rate for Whites is 2 times the rate noted for Blacks or Hispanics. In contrast, the firearm-*homicide* rate for Blacks is 8 times the rate for Whites.

## Major Gaps in Data

1. Lack of consistently reported information about type of firearm (handgun, rifle, etc).
2. Barriers to agencies' participation in surveillance systems (software, hardware usability).
3. Lack of finances, resources, systems impede ability to report.
4. No standardized data set for firearms injuries or deaths in Arizona or United States.
5. No linking of data from state trauma centers.
6. Confidentiality requirements restrict complete reporting.

## Current Interventions

Police Departments and other law enforcement agencies, Fire Departments, schools, media and other community agencies provide education on responsible use of firearms, collaborate on controlling access, maintain public awareness of firearms as a major injury problem, and enforce current laws directed at misuse of firearms.

Hospitals, trauma centers, emergency departments, Behavioral Health Agencies, faith communities and other agencies provide support for survivors and families. Within ADHS, current and active programs focused on firearms are found within the Bureau of Public Health Statistics, Bureau of Community and Family Health, Office of Women's and Children's Health and the Division of Behavioral Health. Among the programs that exist are several national campaigns (Stop II, ASK, Project Home Safe, CoMotion, Project Life Line, Join Together).

## References

Flood TJ, Ciocazan MM. *Injury Mortality Among Arizona Residents, 1989-1999*. Data extracted from, Arizona Health and Vital Statistics, 1999. ADHS. March 2001.

Mrela C. *Arizona Health and Vital Statistics, 1999*. ADHS.

Mrela C, Coe T. *Firearm Related Fatalities, Arizona, 1989-1999*. April 2001. ADHS

Mrela C, Coe T. *Arizona Health Status and Vital Statistics, 2000*. November 2001. ADHS.

Website: [www.hs.state.az.us/plan/](http://www.hs.state.az.us/plan/) for that part of Arizona's yearly vital statistics report that focuses on firearm injury.

Injury Name: Firearm Injuries			
Objective #1: Establish Reliable and Complete Data on Number and Type of Firearm Injuries.			
Strategic intervention	Key partners	Action steps	Lead party
1) From existing sources, collect and analyze data on firearm injuries in addition to deaths from firearms	ADHS Law Enforcement Fire Departments ACADV Mental Health Agencies ER and Trauma Facilities Community Health agencies Coroners and Medical Examiners	Identify and research sources of information Establish links	ADHS
2) Develop data driven interventions to reduce deaths and injuries from firearms	ADHS Law Enforcement Fire Departments	Identify and encourage sharing of resources for prevention Develop and promote pre-injury reporting, confiscation, and destruction of illegal firearms.	ADHS

Baseline: No systematic, inclusive, statewide database.

Target: Systematic, inclusive, statewide set of data on firearms injuries and deaths.

Evaluation: System of data usable to provide reliable, timely and accurate data on firearm deaths and injuries.

Injury Name: Firearm Injuries			
Objective #2: Facilitate Partners in the Plan to Reduce Firearm Injuries.			
Strategic intervention	Key partners	Action steps	Lead party
1) Enforce existing laws relating to access, use and storage of firearms	Law Enforcement Juvenile Justice Courts	Educate the public and policy makers on existing laws Collaborate with law enforcement and judiciary to enforce	Law Enforcement Judicial System
2) Promote and enhance community-based initiatives aimed at reducing violence	ADHS, Public safety CBOs (Boys and Girls Clubs, Mothers Against Gangs, etc) ADOE Schools, APA, MD, DO CAPGunViolence, CARGO NEA – gun safety	Enhance anti-violence programs Using nationally recognized materials Identify strategies to prevent use of illegal firearms	ADHS-BEMS, BHA Law Enforcement
3) Conduct statewide survey of existing programs, target at risk populations, assess outcomes	ADHS Law Enforcement Juvenile Justice Courts	Develop instrument Identify survey targets Arrange for analysis and dissemination of information	ADHS

Baseline: Independent, not necessarily related efforts on many fronts.

Target: Collaborative efforts among several players.

Evaluation: Identification of community collaboration, cooperation and interventions.

Injury Name: Firearm Injuries			
Objective#3: Reduce Firearm-Related Injuries by 5% by 2005			
Strategic intervention	Key partners	Action steps	Lead party
1) Promote community interventions for gun safety education for kids	CDC Local health departments ADHS ADOE CHCs Public Safety (police, fire) Schools	Develop and promote firearm safety programs involving many stakeholders in communities Identify and expand effective prevention strategies	ADHS
2) Reduce access to fire arms by children	ADHS Public Safety CBOs Mothers Against Gangs Schools	Promote and encourage use of “lock up” strategies for firearms Enforce existing laws	Law Enforcement ADHS
3) Promote safe storage of firearms	ADHS Public Safety CBOs (Boys and Girls Clubs) Schools Families and caregivers	Destroy confiscated firearms Promote and encourage use of “lock up” strategies for firearms Identify effective strategies to prevent use of illegal firearms	Law Enforcement ADHS

Baseline: Children accessing firearms, firearm mortality among AZ children significantly above US rate.

Target: Reduction 5% by 2005.

Evaluation: Compare age adjusted rates with AZ 2000 and US 2005.

## **Chapter 5: Violence Against Women**

### **Background**

Violence against women is defined as acts of violence committed against women by acquaintances or strangers. This includes intimate partner violence, domestic violence, and sexual violence, as well as any other form of violence against women. Although sexual assault and rape are an important part of violence against women, this chapter focuses on domestic violence against women.

Domestic violence may include physical and emotional abuse, as well as threats. A study in 1994 (Smolawe) found that more than half of homicides against women were associated with domestic violence. In the US, one million women annually suffer non-fatal violence by an intimate partner. Put another way, physical abuse to women occurs every 9 seconds. It has been reported that up to 30% of women presenting to an emergency department for treatment had injuries from battering.

Although Arizona has no comprehensive, reliable data surveillance system for domestic violence, in 2000 the Arizona Coalition Against Domestic Violence (ACADV) tracked domestic violence-related deaths reported in Arizona newspapers and published the results in a report called “Arizona Domestic Violence-Related Deaths-2000”. This report indicated that a total of fifty-three women died, as a result of being shot, stabbed, beaten, strangled, hanged, burned, drowned and/or dismembered. Twenty-two of those deaths were “murder suicides” and forty-six children were left behind as a result of these actions. In the same period, death certificates listed 99 women as having died from homicide.

In the US, an estimated 3.3 million children are exposed to domestic violence every year and when a parent abuses another parent, the children are often abused also. Effects on these children are seen in emotional, cognitive, and developmental impairments. They often continue to model abuse behaviors. Thus it is important to consider the needs of children when considering the needs of women who have suffered domestic violence.

An important aspect of helping women to avoid domestic violence is the provision of a safe place to go to escape danger in the home. A summary of data collected from domestic violence shelter services in Arizona reported that during the period of July 1, 2000 through June 30, 2001, there were 22,162 women and children who requested shelter and only 8,148 of them received it. Shelter was unavailable to 14,014 women and children at the time of request.

Shelters do not compare lists of those who seek and are denied shelter for lack of space. But even though some requests may have been counted more than once as women sought admission to shelters already full, these numbers show that Arizona needs more shelters. ACADV recently assessed the services and capacities of shelters and safe homes and concluded that while data are incomplete and inconsistent nevertheless, it is evident that support available is insufficient to the need for programs and services.

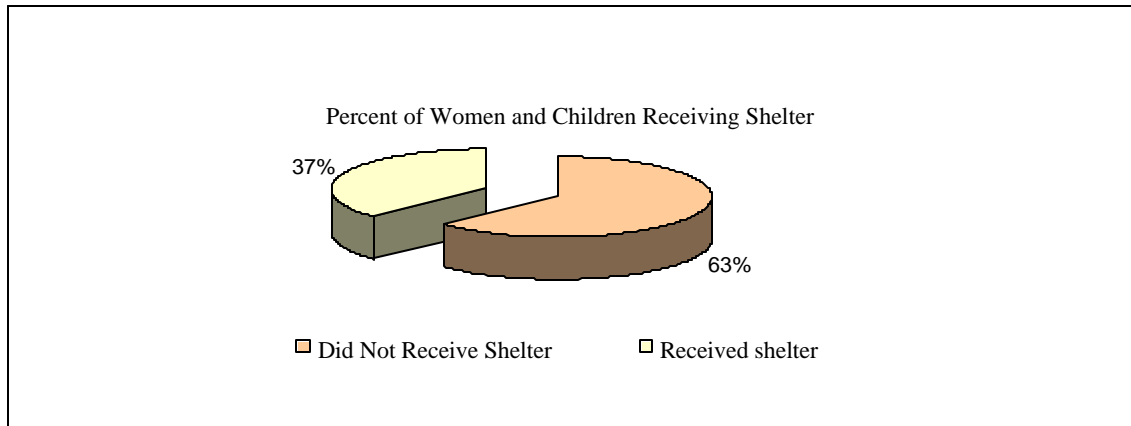


Figure 1. Women and Children Receiving Shelter July 1, 2000 through June 30, 2001 in Arizona.

### Existing Surveillance Systems

There is very little complete data available in the area of violence against women due to under reporting and inaccurate and incomplete documentation. Arizona death certificates are an inadequate source for measuring violence against women. In 2000, there were 99 females who died as a result of a homicide. The number of non-fatal incidents is obviously even greater.

### Summary/Highlights of Data

- During the calendar year 2000, 90 of Arizona's 105 law enforcement agencies provided information on domestic violence occurrences.
- In Arizona domestic violence calls are the largest request for service from law enforcement agencies.
- Every 6 minutes a law enforcement officer responded to a domestic violence call.
- Every 29 minutes an arrest was made as a result of a domestic violence incident.
- In 2000, there were 13,350 cases in which children were present during a domestic violence incident, an increase from 12,007 in 1999.
- Among those that went to shelters, 3,317 victims made reports to law enforcement.
- 322 victims and 1,549 perpetrators were arrested during an incident.
- 1,149 victims had obtained an Order of Protection or Injunction Against Harassment.
- 1,369 of the victims reported seeking emergency medical intervention.
- Among agencies that report, for 1999 and 2000 there was an 11% increase in the occurrence of overall domestic violence reports and an 11% increase in the number of children who witnessed such incidents.

### Major Gaps in Data

1. Incomplete data sources.
2. Lack of complete or precise reporting by law enforcement.
3. Lack of complete and central databases.



## **Current Interventions**

Currently the Arizona Coalition Against Domestic Violence generates reports on domestic violence incidents in Arizona. The State Agency Coordination Team (SACT) holds meetings to discuss statewide issues related to domestic violence. As of 2002, the Domestic Violence program in the ADHS funds 30 shelters throughout Arizona. The Hopi Tribe and the city of Eloy are among local agencies and governmental bodies that have received grants to reduce domestic and other violence, demonstrating the concern that residents of Arizona feel about the problem.

## **References**

Arizona Coalition Against Domestic Violence. *Comparison of Arizona's Statutes, Policy, Training and Education to the Model Code on Domestic and Family Violence, National Council of Juvenile and Family Court Judges, 1994*. Report prepared for ADHS Violence Against Women Supplemental Agreement. June, 2002.

Arizona Coalition Against Domestic Violence and Arizona State University Center for Urban Inquiry. *Data Source Assessment*. Report prepared for ADHS Violence Against Women Supplemental Agreement. September, 2002.

The Arizona Governor's Division for Prevention of *Family Violence Fiscal Year 2001*; Annual Report.

Arizona Coalition Against Domestic Violence. A summary of newspaper clippings, *Domestic Violence 2000*.

Arizona Supreme Court website: [www.supreme.state.az.us](http://www.supreme.state.az.us)

Maricopa Association of Governments (MAG) Regional Domestic Violence Council website: [www.mag.maricopa.gov/dv](http://www.mag.maricopa.gov/dv)

Injury Name: Violence Against Women			
Objective #1: Develop or Enhance Data Systems for Tracking Abusive Incidents.			
Strategic Intervention	Key Partners	Action Steps	Lead Party
1) Identify existing data sources	DPS ADHS Law Enforcement Domestic Violence Coalition Shelters Attorney General's office HMOs DES Legislature	Gather more precise information on domestic violence: Standardize data Enact requirements for reporting and dissemination	ADHS Arizona Coalition Against Domestic Violence (ACADV)

Baseline: Current incomplete sources.

Target: Systematic collection, analysis and dissemination of reliable and complete data on domestic violence.

Evaluation method: System in place and reliability established.

Injury Name: Violence Against Women			
Objective #2: Increase Public Awareness of the Potential for and How to Prevent Violence.			
Strategic Intervention	Key Partners	Action Steps	Lead Party
1) Community education focused on recognizing DV and providing resources for helping people to deal with it	ADHS ACADV Counseling Staff Schools, Colleges MAN	Teach staff to recognize and help people affected by DV Public education workshops Media campaign on recognizing DV and resources available	ADHS – Domestic Violence Program ACADV
2) Empower victims and potential victims of violence	ACADV ADHS Law Enforcement	Promote self-defense Educate on reporting incidents to Law Enforcement and seeking protection Educate on the need to get medical assistance	ADHS – Domestic Violence Program ACADV
3) Develop educational strategies for professionals in behavioral and general health on the current knowledge, attitudes, and beliefs regarding domestic violence	ACADV ADHS Graduate Programs	Conduct focus groups Increase awareness of up-to-date popular culture among behavioral health staff Develop curriculum targeting behavioral health staff	ADHS – Domestic Violence Program ACADV

Baseline: Inaccurate and incomplete awareness of causes and effective deterrents to violence.

Target: State Plan for dealing with violence against women.

Evaluation: Plan will be developed and implemented.

## Chapter 6: Drowning

### Background

Drowning ranks as the 4<sup>th</sup> leading cause of unintentional death of Arizona residents of all ages. Among infants, toddlers, and preschool-age children, drowning claims the lives of approximately 25 Arizona children each year (Figure 1). Of young children involved in a serious drowning incident, approximately 9% survive, albeit with neurological impairment, 25% die, and 66% survive with no apparent ill effects because CPR was given promptly. Most of the intervention efforts during the past decade in the Phoenix and Tucson areas have focused on preventing young children from drowning in swimming pools.

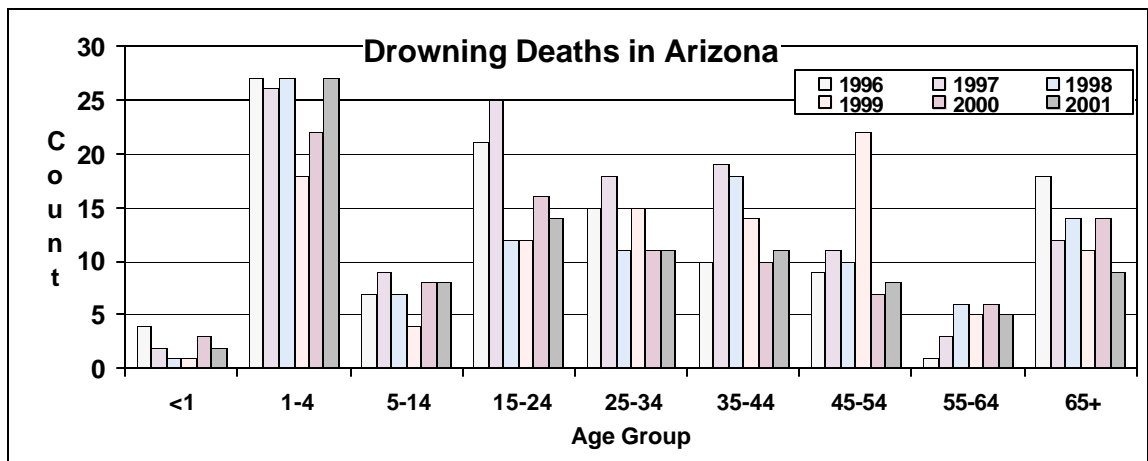


Figure 1. - Drowning deaths by age group in Arizona 1996-2001.

### Existing Surveillance Systems

There are several systems in place to monitor drowning deaths and non-fatal near-drowning in Arizona. These include death certificates, reports issued by the Child Fatality Review Team, and hospital discharge data. ADHS maintains these data systems, all of which are established by statute. Also, fire departments report the drowning and near-drowning that occur in Maricopa County. These reports are sent voluntarily to ADHS, which works in conjunction with the Drowning Prevention Coalition of Central Arizona to produce an annual report. The Tucson Fire Department in Pima County compiles case reports of drowning incidents in Pima County: data are tabulated, but no formal report is produced.

Of these sources, death certificates are the most reliable measure of deaths from drowning and are the primary source used by ADHS, the Drowning Prevention Coalition, and the Child Fatality Review Team to track drowning trends.

Hospitalizations can be monitored from the hospital discharge data; however, this dataset only covers nonfederal hospitals in Arizona. Non-fatal immersion incidents are tracked if a fire department is involved or if the victim is admitted to an Emergency Room or hospital. Even then, outside of Maricopa County, incidents may be difficult to acquire or to verify. Case reports provide valuable detailed information about risk factors. More

than half of the population of Arizona lives in Maricopa County, which may be considered a good area to monitor incidents, circumstances, and demographics, especially for incidents involving children ages 0-4.

### Strengths and Weaknesses of the Data Systems

Starting in 1988 fire departments in the Phoenix area have been strong supporters of a centralized system to count water-related incidents occurring in the Phoenix area. There is high acceptance of this reporting system by most fire departments. However, data obtained from fire department reports may be affected by subjective classification of the circumstances of injury. Some cases go unreported, there are lags between submitting and reviewing the case reports, and reviewers may be biased. Only Pima and Maricopa counties have monitoring systems. Due to the imprecise nature of E-codes in ICD-9, both fatal and non-fatal drowning injuries may be miscoded or misclassified as to the circumstance or location. Discharge data from federal hospitals (including IHS) are not part of Arizona's hospital database.

### Summary/Highlights of Data

- Among 0-4 year olds, deaths by drowning have averaged 25 per year since 1989.
- The drowning rate for Arizona children age 0-4 (7.06 deaths per 100,000 children) has been consistently more than twice the US rate (2.95 per 100,000). This rate has placed Arizona the fourth highest state in 1998, and the second highest in both 1996 and 1997.
- In Maricopa County the child drowning rate has decreased since 1990 (Figure 2), but still exceeds the United States rate.

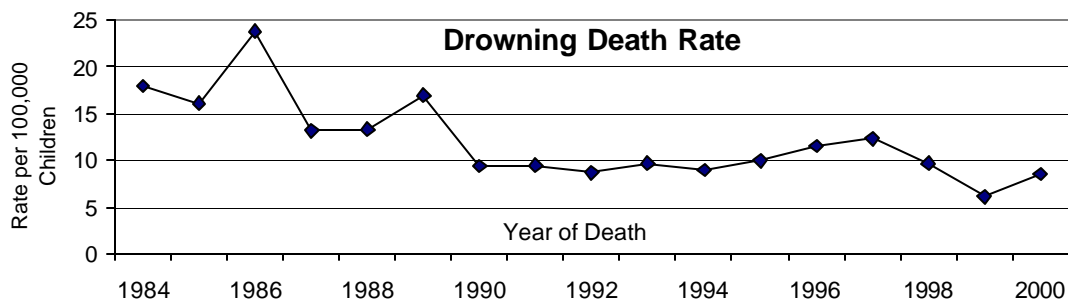


Figure 2. - Drowning rate among children age 0-4 in Maricopa County, 1984-2000.

- Home swimming pools pose the greatest threat to Arizona children age 0-4. Pools account for 198 (71%) of the 279 drowning deaths between 1989-1999 (Figure 3).

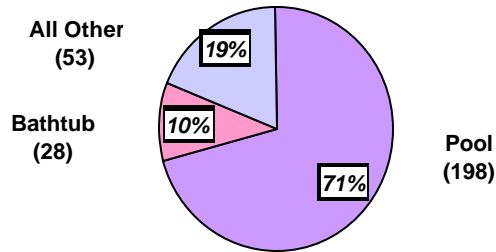


Figure 3. - Water body in which drowning incidents occurred, ages 0-4.

- Among children age 1-4, the Arizona death rates from drowning nearly equal the death rate from motor vehicle-related injury (the leading cause of death in this age group).
- Among persons of all ages, deaths by drowning have averaged 92 per year since 1989.

### Major Gaps in Data

1. Poor documentation of circumstances of drowning among older children or adults.
2. Circumstances are unknown for drowning in counties other than Maricopa.
3. Role of swim lessons in preventing child drowning is unknown.
4. Role of barriers in preventing child drowning has not been quantified in Arizona.
5. Incidence of boating-related drowning on Colorado River and Phoenix area lakes.
6. Public Health has not worked with the Arizona Game and Fish Department on this issue.

## **Current Interventions**

The Drowning Prevention Coalition of Central Arizona (DPCCA) consists of fire departments in Phoenix area, hospital staff, parents, American Red Cross, Maricopa County Health Department, industry groups, and others who educate the public, urge legislative action, and promote the safe use of water. The ADHS-sponsored Child Fatality Review Teams in Phoenix and Tucson metro areas also address drowning. Various television and radio stations promote safety around water, as do fire departments statewide. The state has passed pool barrier regulations, but these may conflict with laws passed by some local jurisdictions. To date, public health agencies have not participated in the activities of county and local law enforcement agencies, US Coast Guard, Arizona Game and Fish Department, or the US Forest Service in terms of promoting safe recreation use of lakes and rivers.

## **Active Programs and Contacts at ADHS**

- Bureau of Public Health Statistics (Tim Flood, 602-542-7331)
- Child Fatality Review Program (Robert Schackner, 602-542-1875)

## **References**

Flood TJ. *Water-Related Incidents in 2000 in Maricopa County*, a report to the Drowning Prevention Coalition of Central Arizona. ADHS. August 2001.

Mrela C. *Arizona Health and Vital Statistics*, 1999. ADHS. Also, see website [www.hs.state.az.us/plan/](http://www.hs.state.az.us/plan/) for Arizona's yearly vital statistics report that focuses on drowning.

Injury Name: Drowning			
Objective #1: Reduce Pool Drowning and Near-Drowning			
Strategic intervention	Key partners	Action steps	Lead party
1) Clarify the role of swim lessons in children under 5 years of age	CDC; ADHS; fire departments	Design a survey to ask about the swim skills of children who drown or nearly drown	ADHS
2) Increase public awareness about pool safety in central Arizona	DPCCA	Develop and produce a comprehensive media campaign with consistent messages Obtain corporate and media sponsorship	DPCCA
3) Standardize and enforce pool barrier codes in all municipalities	State Legislature, municipal zoning departments, real estate agents	Ask each city to identify a dept to enforce their city codes Partner with real estate agents	DPCCA
4) Increase parental skills in giving infant/child CPR	American Red Cross, fire departments, nursing associations	Find corporate sponsor (TV, hospital) for mass summer CPR training School-based CPR classes	To be determined

Baseline: Arizona rate of death caused by drowning in pools, ages 0-4, average for years 1995 through 1999.

Target: Reduce AZ pool-only rate to that of the US rate from "all drowning causes, ages 0-4." In Year 1998: the latter rate was 2.95 per 100,000 population ages 0-4 [data for baseline and target are found in: ADHS Vital Statistics, Drowning Report, 1989-1999].

Evaluation method: This will be an objective outcome measurement, comparing rate against rate.

Injury Name: Drowning			
Objective #2: Expand the Drowning Surveillance System			
Strategic intervention	Key partners	Action steps	Lead party
1) Expand the surveillance systems to include pool incidents in all counties	ADHS (Child Fatality Review Team; the Maricopa surveillance); individual fire departments statewide, especially Tucson FD	Develop a web-based drowning report system for fire departments  Discuss expansion with Tucson FD	ADHS
2) Expand the surveillance system to monitor incidents at Salt River and Lake Pleasant	ADHS; MCSO; Maricopa County Parks	Invite Maricopa County Sheriff's Office (MCSO) to join the Drowning Prevention Coalition of Central Arizona	DPCCA
3) Count and report incidents occurring on Colorado River	ADHS; Coast Guard (USCG) on Colorado River various police and sheriff's offices; AZ Game and Fish Department; US National Park Service	Meet with USCG and AZ Game & Fish  Determine jurisdiction on various segments  Utilize web-based reporting of water incidents	ADHS

Baseline: Only Maricopa County is under surveillance.

Target: Statewide reporting of water incidents.

Evaluation method: Proportion of state water incidents covered by the surveillance system.



## Chapter 7: Falls

### Background

For the last decade, falls have been the leading cause of injury deaths among adults aged 65 and older in the U.S. They are also the most common trauma resulting in hospital admissions for older adults. In 1998, the age-adjusted rate of deaths due to falls nationally was 4.7 per 100,000 populations. *Healthy People 2010* established a target for reduction in this rate to 3.0 deaths per 100,000. In Arizona, the age-adjusted rate for fall-related deaths in 1999 was 8.6 per 100,000 populations, with 83.3% of fall-related deaths occurring in residents aged 65 and older. Falls were the leading cause of injury-related hospitalizations of Arizona residents in 1999, totaling 9,379 or one-third of all injury hospitalizations, 15% more than hospitalizations for motor vehicle crashes.

For purposes of the Arizona Injury Prevention Plan, this chapter focuses on unintentional falls. Injuries from intentional falls are categorized as suicide, homicide, or interpersonal violence, and require different strategies for intervention and prevention (see the appropriate chapters in this Plan).

Figure 1 shows the disproportionate number of *deaths* due to falls by age group in 1999 with elderly Arizona residents dying from fall-related injuries at rates five to ten times greater than those younger than 75 years of age.

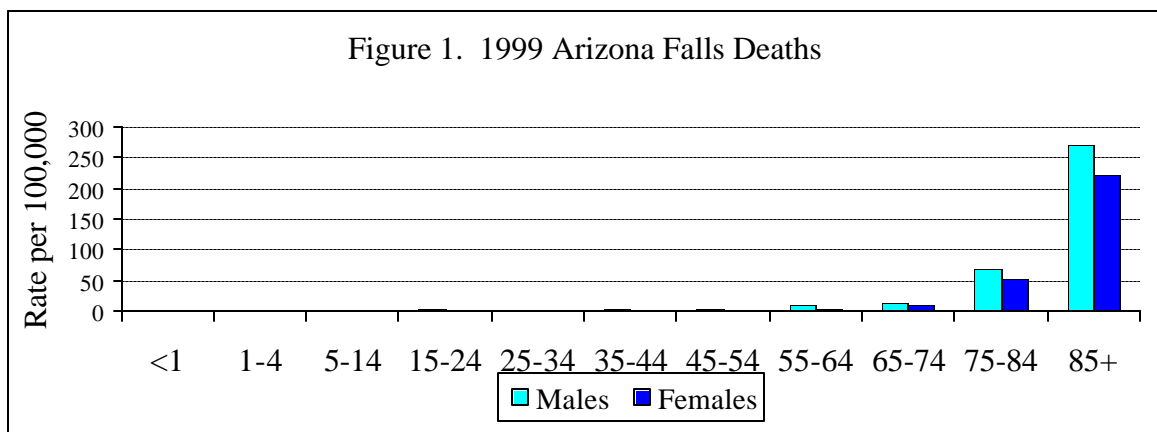


Figure 1. – Deaths from falls: in Arizona 1999.

Figure 2 shows the same disproportion by age group for Arizonans hospitalized in 1999 with fall-related *injuries*. The age-adjusted rate was 199.5 per 100,000 population.

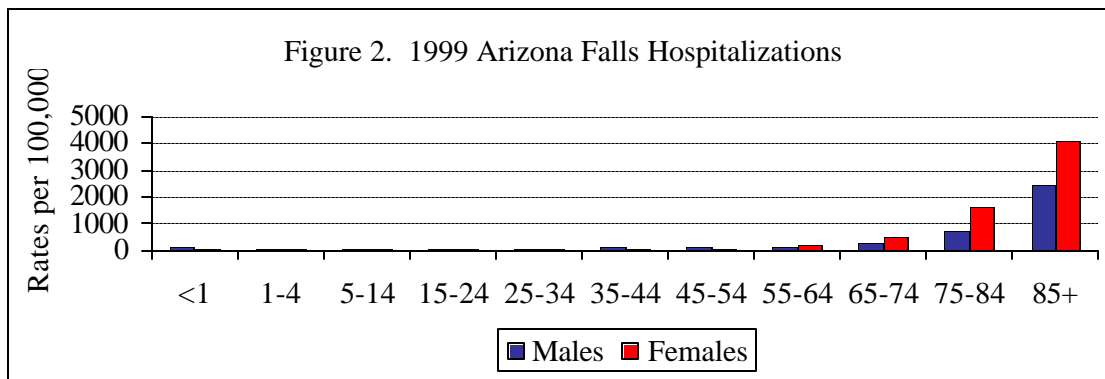


Figure 2. – Hospitalizations due to falls in Arizona 1999.

*Healthy People 2010* not only addresses prevention of deaths due to falls but targets reduction in hip fractures among older adults as well. Hip fracture is the most serious fall-related injury with approximately 212,000 such injuries occurring annually in the U.S. among adults 65 years and older. Females sustain seventy-five to eighty percent of all hip fractures. Factors contributing to falls are both physical and environmental with most falls occurring in the home, and effective intervention strategies must be based on a thorough understanding of the contributing factors. Arizona has long been a popular destination for retirees and continues to offer a healthy, active lifestyle for this steadily growing population. Therefore, reduction in falls among this age group has become an important goal in the state.

At the lower extreme of age, falls are the leading cause of non-fatal unintentional injuries and of visits to the Emergency Department for children from infancy through age fourteen, accounting for an estimated 2.5 million ED visits each year. Falls are the leading cause of injury hospitalizations among children under age five. Children are vulnerable to falls when learning to walk and explore, as toddlers, and again when engaging in activities on playgrounds or in sports. Most recover without incident from relatively minor injuries. Most fatal falls among children are from heights, as from windows in tall buildings.

Understanding the total picture of fall-related injuries in Arizona includes not only the examination of issues of aging and of childhood safety but also those surrounding occupational and recreational falls. All must be addressed in the development of effective fall prevention strategies.

### Existing Surveillance Systems

Data on injuries from falls is available at ADHS via the Hospital Discharge Data System, Vital Statistics Death Certificates, and State Trauma Registry. Other sources for falls data are the Minimum Data Set (MDS) reports for skilled nursing facilities, the Outcome and Assessment Information Set (OASIS) reports for home health agencies at the Division of Assurance and Licensure, national Medicare data, and the Department of Labor (Census

of Fatal Occupational Injuries). The Department of Education from time to time has conducted surveillance of playground injuries.

### **Strengths and Weaknesses of the Data Systems**

The data systems are all moderately complex. E-codes facilitate identification of unintentional falls but inconsistencies in coding affect the quality of data. Attributes of some data systems are unknown at this time. Some are not easily accessible. Strategic interventions for this chapter include identifying and evaluating existing data sources.

### **Summary/Highlights of Data**

- The age-adjusted rate for fall-related deaths in Arizona in 1999 was 8.6 per 100,000 population compared with 4.7 per 100,000 in the U.S. in 1998.
- 83.3 % of fall-related deaths in Arizona in 1999 occurred in those aged 65 years and older.
- In 1999, falls were the leading cause of all injury-related hospitalizations of Arizona residents.
- Falls were the second leading cause of death due to unintentional injury in 1999, exceeded only by motor vehicle crashes.

### **Major Gaps in Data**

1. Arizona's Hospital Discharge Data System does not collect discharge data from federal hospitals (IHS, VA, military hospitals and clinics) so information on falls are missing from those agencies.
2. Emergency department and outpatient clinic data are not included if a person is not admitted.
3. Nursing homes and long-term care facilities do not report inpatient data to the hospital discharge system.

### **Current Interventions**

Groups in Arizona that are trying to reduce falls include: Arizona Department of Education, SafeKids Coalition, Children's Action Alliance, AARP, the insurance industry, and ADHS Division of Assurance and Licensure. Miscellaneous programs and campaigns are found at the county and community level. Hospitals and home health agencies often provide home evaluations and fall risk assessments at time of discharge. Fall risks are regularly assessed in long term care and assisted living facilities and interventions are instituted as indicated.

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Healthy People 2010, 2<sup>nd</sup> Ed. With, *Understanding and Improving Health and Objectives for Improving Health* (Two Volumes). Washington, D.C., November 2000.

Injury Name: Falls			
Objective # 1: Establish Baseline Data on Fall Injuries and Deaths Related to Falls in Older and Younger Members of the Population.			
Strategic intervention	Key partners	Action steps	Lead party
1) Integrate sources of fall injury and death from falls	ER, Nursing Homes, Skilled Nursing Facilities (SNF) and Assisted Care Facilities, Home Care Agencies, Schools, DOE Census of Fatal Occupational Injuries (CFOI), US Department of Labor (DOL), Bureau of Labor Statistics, Annual Survey of Occupational Injuries and Illnesses (ASOII), National Electronic Injury Surveillance System (NEISS), Consumer Product Safety Commission (CPSC), AHCCCS encounter data, Industrial Commission	Define level of injury to be reported Identify method of reporting Relate to existing sources of injury data reporting Identify AZ work-related occupations that have higher incidence of falls	ADHS

Baseline: No systematic collection of data on injury producing falls across all age groups. Fall-related deaths are collected via Vital Records.

Target: Systematic collection of school falls, falls among the elderly and occupational falls.

Evaluation method: Deaths and injuries from falls across all age groups will be in an accessible database.

Injury Name: Falls			
Objective #2: Reduce Childhood Injuries Related to Falls.			
Strategic intervention	Key partners	Action steps	Lead party
1) Evaluate role of licensing and other government departments in childhood fall injury review and prevention (identify current programs/interventions/data sources)	ALS Children's Action Alliance DES Department of Education FD programs (Risk Watch and Urban Survival) EMSC AAP Safe Kids Coalitions CPS Child Fatality Review Team	Identify programs which have safety fall prevention strategies in place Partner with private and public organizations currently in existence to assess success and relate to regulations	ADHS
2) Educate public on findings	Key partners above Media	Create public information programs	ADHS
3) Establish helmet laws and education	Legislators Key partners above	Collect data on helmet use Support legislation either singly or as part of a comprehensive MV safety bill law	ADHS

Baseline: Incidence of falls in children.

Target: Reduce by 5% in 3 – 5 years.

Evaluation method: Using incidence data sources, including mortality rates – compare to baseline.

Injury Name: Falls			
Objective #3: Decrease the Number of Falls Among the Aging Population.			
Strategic intervention	Key partners	Action steps	Lead party
1) Identify sources of fall injury and death from falls	ER, Nursing Homes, SNF and Assisted Care Facilities, Home Care Agencies, National Electronic Injury Surveillance System (NEISS), Consumer Product Safety Commission (CPSC), AHCCCS, encounter data	Define level of injury to be reported Identify method of reporting Relate to existing sources of injury data reporting Identify AZ work-related occupations that have higher incidence of falls	ADHS
2) Identify effective safety education programs on fall prevention for individuals and caregivers	ALS, AARP, AAA, AOMA, HSAG, AHCCCS, Senior Centers, Nursing Home Association, AHA, Gerontologist Association, APS	Assess predisposing health and environmental risk factors Promote use of a fall risk assessment template for factors in the home, outside environments, schools and workplace Promote nutrition and weight training programs in nursing homes	ADHS
3) Develop mass marketing plan for existing programs and resources	Key partners above, PIO, Local media outlets, County Health Officers	Develop inventory of existing programs Develop marketing plan i.e. website	ADHS County Health Officers
4) Promote strength and balance of older persons	Nursing Homes, SNF, Assisted Care Home Caregivers, Physicians and NP, PA, Senior Centers, ADHS, AZ Chapter AHA	Evaluate/enhance existing programs i.e. nutrition, weight training Provide educational programs to gap areas	ADHS

Baseline: Current death and injury rates among elderly.

Target: Per Healthy People 2010: Reduce deaths from falls in 65-84 year olds to 14.4% per 100,000, 105.2 % for those older than 85 and 4.5% overall.

Evaluation method: Mortality and injury rates across age groups compared to United States and Arizona with high elder populations.

## Chapter 8: Traumatic Brain and Spinal Cord Injury

### Background

Of all types of injuries, trauma to the central nervous system (brain and spinal cord) is most likely to result in death or lifelong disability.<sup>1</sup> It is estimated that approximately 1.5 million Americans survive a traumatic brain injury (TBI) each year and another 50,000 die.<sup>2</sup> In addition, more than 200,000 live with spinal cord injury (SCI) disability in the US, and approximately 11,000 more people are hospitalized for traumatic spinal cord injury (SCI) each year, not including those who die.<sup>3</sup> The most recent data from Arizona's Traumatic Brain Injury Surveillance Program show an incidence rate of 112.9 TBI's per 100,000 persons compared to a national estimate of 95 per 100,000 persons. Spinal cord injury rates are difficult to determine nationally due to smaller numbers and fewer studies of incidence. The incidence rate in Arizona for the four-year period 1995-1998 was 5.9 SCI's per 100,000 persons.<sup>4</sup>

Motor vehicle crashes, falls, and firearms are the leading causes of TBI and SCI in Arizona and nationwide. Age groups most impacted by these injuries are adolescents, young adults, and the elderly. Costs of hospitalization for TBI in Arizona average over \$108 million annually, and SCI annual hospitalization costs are over \$15 million. These figures are charges for the initial hospitalizations only and do not include readmissions, rehabilitation, or physicians charges. Disparities among groups exist in incidence of TBI and SCI in Arizona, with highest rates occurring in Native American males.

The state injury plan focuses on ten injury topics, nine of which are mechanisms, or causes of injury. TBI and SCI have been combined into one chapter for central nervous system injuries which can be caused by any six of the remaining nine mechanisms of injury: motor vehicle, homicide, suicide, firearms, violence against women, and falls. A separate chapter is devoted to TBI and SCI in this plan due to the significant economic and social impact these injuries have on specific groups in our state. Effective prevention programs in each of the areas will reduce both the incidence and severity of TBI and SCI to Arizonans.

Figure 1 shows age-adjusted rates of TBI in Arizona to be twice as high for males than females in each of the four years. Overall rates remained fairly consistent over the four-year period.

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<sup>1</sup> Thurman DJ, Sniezek JE, Johnson D, Greenspan A, Smith SM. *Guidelines for Surveillance of Central Nervous System Injury*. Atlanta: Centers for Disease Control and Prevention, 1995.

<sup>2</sup> National Center for Injury Prevention and Control. *Traumatic Brain Injury in the United States: A report to Congress*. Atlanta: Centers for Disease Control and Prevention, December, 1999. p.4

<sup>3</sup> National Spinal Cord Injury Statistical Center. *Spinal Cord Injury: Facts and Figures at a Glance, June 2000*. National Institute on Disability and Rehabilitation Research, U.S. Department of Education, Washington, D.C., p.1

<sup>4</sup> *Traumatic Brain Injury and Spinal Cord Injury in Arizona, 1995-1998*. ADHS. January, 2002

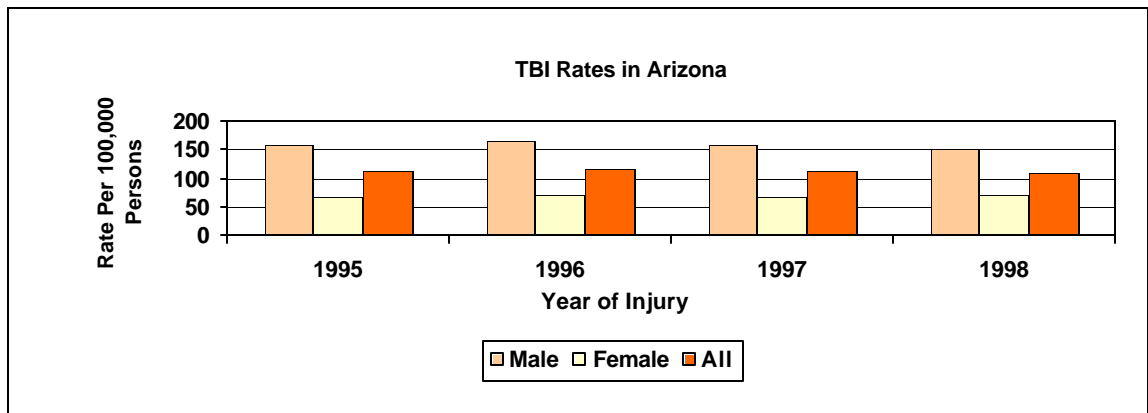


Figure 1. - TBI Age-Adjusted Rates by Gender in Arizona, 1995-1998.

Figure 2 shows age-adjusted rates of SCI in Arizona to be 2.5 to 3 times higher for males than females in the four-year period. Due to the small number of SCI's annually, rates may be statistically unreliable.

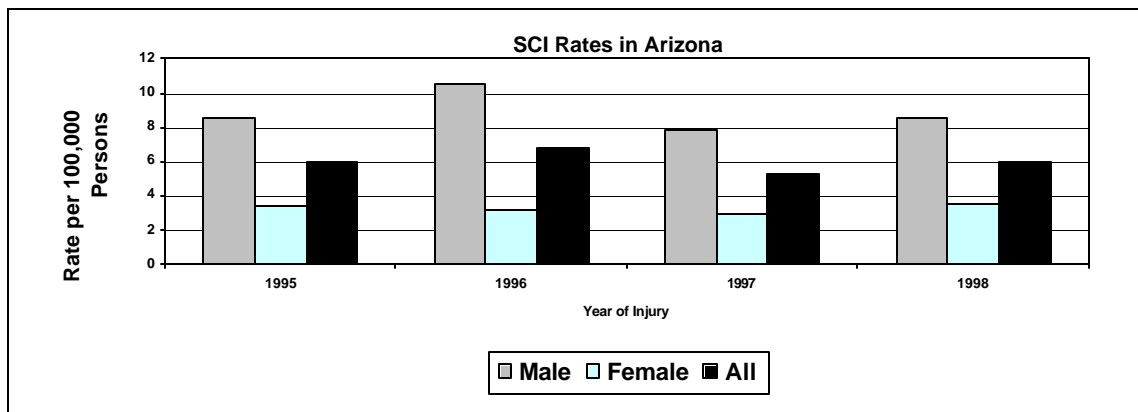


Figure 2. - SCI Age-Adjusted Rates by Gender in Arizona, 1995-1998.

### Existing Surveillance Systems

The Arizona Traumatic Brain Injury Surveillance Program collects information about the incidence of TBI and SCI statewide using hospitalization and mortality data. Case definitions are consistent with CDC's *Guidelines for Surveillance of Central Nervous System Injury*. Other data sources are: Arizona Hospital Discharge Database, Arizona Vital Records Death Certificates, Underlying Cause of Death Data, Arizona Medical Examiner Reports (county-based system), hospital medical records, Arizona State Trauma Registry, and Arizona Crash Outcome Data Evaluation System (CODES).

### Strengths and Weaknesses of the Data Systems

The data systems and sources are all moderately complex to very complex with ongoing inconsistencies in E-coding and difficulties with transition from ICD-9 to ICD-10 for mortality data. Systems overall are inflexible, with legislative rule revision required to make changes. Data quality varies among the systems with higher quality seen in those which require evaluation or have access to medical records for verification of data elements. Acceptability is generally high in mandated systems. Sensitivity is unknown at



this time for most surveillance systems. The process for evaluating is complex and requires additional resources. The systems vary in timeliness of reporting. Representativeness depends on the severity level of cases. Serious TBI and SCI are captured in the main surveillance systems but mild TBI is generally not identified due to lack of Emergency Department data and outpatient clinic data. The systems are moderately stable in terms of technical capability and resources, but for several of the systems, stability is reduced by delays in producing reports.

## **Summary/Highlights of Data**

### **A. Traumatic Brain Injury**

- From 1995-1998, 20,221 Arizona residents sustained traumatic brain-related injuries, which resulted in pre-admission death or hospitalization. Over 4,000 (21%) died. Nearly 75% of those deaths occurred before admission to a hospital.
- Males outnumbered females in TBI incidence by 2:1 and were three times more likely to die from a TBI than females.
- The highest incidence rate of TBI was seen in those 85 years and older followed by 15-19 year olds (174.7 TBI's per 100,000) and 20-24 year olds (169.9 TBI's per 100,000). The annualized age-adjusted rate was (112.9 TBI's per 100,000).
- By race/ethnicity in 1998 alone, the age-adjusted rate of TBI was highest among Native American males (263.3 per 100,000), with Hispanic males second highest (162.0 TBI's per 100,000). For females, Native Americans had the highest rate (101.4 per 100,000), and White, non-Hispanic females second highest (64.8 TBI's per 100,000).
- The leading cause of TBI was motor vehicle crashes accounting for 42.7% of all TBI's. The second leading cause was falls with 20.5%, followed by firearms with 12.3% of all TBI's.
- Total hospital charges during the four-year period averaged \$108,464,321 annually. The average hospital charge per event was \$25,523 with an average stay of five days.

### **B. Spinal Cord Injury**

- For the same period, 1,071 Arizona residents sustained a spinal cord injury. Eighty-four percent survived the injury event and 16% died; 55% of the deaths occurred before hospital admission and 45% died during hospitalization.
- Annually an average of 268 Arizona residents sustained a SCI. Males were 2.6 times more likely to sustain a SCI than females and were twice as likely to die from a SCI.
- Incidence rates of SCI from 1995-1998 were highest in those 85 years and older (11.2 SCI's per 100,000). Second highest rates were seen in 20-24 year olds (10.9 SCI's per 100,000), followed by 15-19 year olds (10.4 SCI's per 100,000). The age-adjusted rate annualized for the four-year period was 5.9 SCI's per 100,000 persons.
- In 1998, the age-adjusted rate was highest in Native American males (12.5 SCI's per 100,000 persons), followed by Native American females (8.7 SCI's per 100,000 persons).
- The leading cause of SCI was motor vehicle crashes accounting for 43.6% of all SCI's. The second leading cause was falls (22.0%), followed by firearms with 10.0% of all SCI's.

- Total hospital charges during the four-year period averaged \$15,028,451 annually. The average hospital charge per event was \$61,828 with an average stay of 11 days.

### **Major Gaps in Data**

1. Hospitalization data are not reported to ADHS by federal hospitals, which include Indian Health Services, military hospitals and clinics, and VA hospitals.
2. Emergency department data and outpatient clinic data are not currently available but facilities have begun reporting as of July 2002.
3. Deficiencies in coding hospital discharge records and inadequate documentation on medical records and medical examiner reports result in inaccurate or incomplete information on severity and outcome.

### **Current Interventions**

Programs and prevention efforts vary throughout the state at all levels, from small community car seat and seat belt campaigns to city ordinances requiring bicycle helmets. The Governor's Council on Spinal and Head Injuries is a significant partner. Other stakeholders include the Arizona Spinal Cord Injury Association and the Arizona Brain Injury Association. Several federally funded and state projects have TBI and SCI prevention components: Safe Kids, EMSC grant, Think First for Kids, AZ Kids with TBI, and playground safety campaigns. Arizona is one of 15 states that track and monitor TBI under a funding agreement from the CDC. In addition, several coalitions in the state address issues such as firearms safety. Refer to other chapters of this plan for interventions for specific causes of TBI and SCI, such as motor vehicle, homicide, firearms, suicide, and falls.

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*Traumatic Brain Injury & Spinal Cord Injury in Arizona, 1995-1998*. ADHS. January, 2002

Injury Name: Traumatic Brain and Spinal Cord Injury			
Objective # 1: Reduce the Severity of Traumatic Brain and Spinal Cord Injury Related Disabilities			
<u>Strategic intervention</u>	<u>Key partners</u>	<u>Action steps</u>	<u>Lead party</u>
1) Develop statewide guidelines for identifying, tracking and providing follow up care for individuals with TBI and SCI	Office of Children with Special Health Care Needs, TBI Surveillance Program, Governor's Council on Spinal and Head Injuries, Safe Kids Coalition, Legacy Foundation, EMSC, Risk Watch, Health Service Advisory Group, Barrow Neurological Institute, St. Joseph's Hospital, Department of Education, Arizona Health Care Cost Containment System, Arizona Medical Association, Arizona Osteopathic Medicine Association, Legislators, Children's Action Alliance, Think First Foundation	Gap analysis Develop guidelines for follow-up care Develop outreach activities to service the affected population Identify key players/process for legislative action Propose legislation for surveillance of TBI/SCI	ADHS: Office of Children with Special Health Care Needs BEMS TBI Surveillance Program
2) Develop mass marketing plan for existing programs and resources	Same as above Public Information Officers Local media outlets County Health Officers	Develop inventory of existing programs Develop marketing plan. Implement marketing plan	ADHS
3) Develop and enhance education and training for first responders, including public professionals	EMS/DPS/FD/PD, Red Cross Search and Rescue organizations, Bureau of EMS, AHA, Barrow Neurological Institute, St. Joseph's Hospital, Safe Kids Coalition	Review existing curricula of professionals and volunteers. Modify curricula accordingly Market volunteer programs	ADHS-BEMS
4) Establish helmet laws and education (See Motor Vehicle Injury Objective #3)	Legislators Above interested parties Uof A-CODES project Children's Action Alliance Arizona Conference of Parents and Teachers	Collect crash data regarding incidents of helmet use Write legislation either singly or as part of a comprehensive highway safety law bill Obtain sponsor for bill Gain public support	Governor's Council on Spinal and Head Injuries

Baseline: Incidence rate 112.9 TBI per 100,000 population; 5.9 SCI per 100,000 population annually.

Target: Reduce TBI and SCI incidence.

Evaluation method: Use CDC surveillance guidelines (2002).

## Chapter 9: Poisoning

### Background

Although the two poison control centers in Arizona received more than 140,000 calls in 2000, most poisonings do not result in death. Illnesses are the most common outcomes ranging from minor to severe. More than 90% of poison exposures occur in the home where children, especially those under the age of six years, are at greatest risk. Children are also most sensitive to the negative health effects of poisoning.

Poisoning by drugs ranks as the 3<sup>rd</sup> leading cause of unintentional injury death in Arizona. The causes of drug-related mortality include drug abuse, accidental overdose and suicide by legal and illegal drugs.

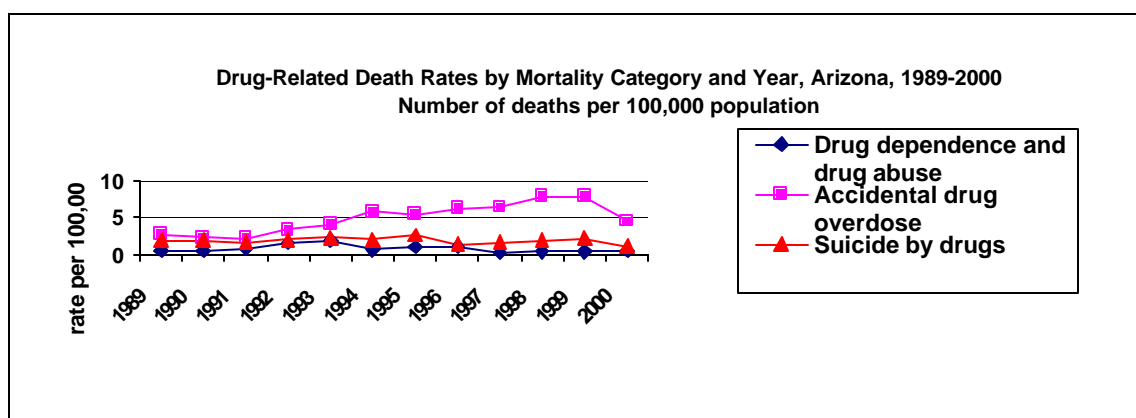


Figure 1. – Drug-related death rates in Arizona, 1989 – 2000.

Prioritizing poisoning prevention approaches at this time is a complex task. There are a variety of poisoning data sets, some of which have not been comprehensively studied. There are many different types of poisoning, including poisoning from household cleaning substances, industrial cleaners, pesticides, lead and other heavy metals, medications, street drugs, alcohol, bites and stings, and weapons of mass destruction, to name a few. Some poisonings, such as those due to illegal drug use, are under-reported. Also, particular attention needs to be given to the indirect effects of poisoning. For example, alcohol poisoning contributes to motor vehicle crashes. Thus poisoning overlaps with other topic categories in this injury prevention plan, including motor vehicle, homicide, suicide, firearms and drowning (see appropriate chapters).

Input from stakeholders during the process of developing this injury prevention plan identified several areas for prevention that are particularly relevant for Arizona, such as preventing drug-related deaths, childhood poisoning, and venomous scorpion stings and rattlesnake bites. Cultural issues to be considered include how language barriers contribute to non-use of poison center services and the over-representation of Hispanics in childhood lead poisoning cases. More data analysis and stakeholder input is needed to prioritize poisoning prevention activities in Arizona.

## **Existing Surveillance Systems**

The system used to monitor poisonings includes death certificates, hospital discharge data, lead poisoning surveillance data, and pesticide poisoning surveillance data. The Arizona Department of Health Services maintains these data systems, all of which are established by statute.

The two poison control centers receive calls and maintain data on poisonings statewide. The Arizona Poison and Drug Information Center is located in Tucson. The Banner Health Regional Poison Center is located in Phoenix.

## **Strengths and Weaknesses of the Data Systems**

Poison center data are standardized and complete, with little misclassification of poisonings circumstances. By helping people manage some emergencies at home, these centers can sometimes prevent hospitalizations and trips to doctors' offices. This means that the poison centers tend to collect data in which the outcome is not very severe, in contrast to death certificates and hospital discharge data. Mortality rates and severe morbidity rates may be underestimated by poison center data due to lack of a mechanism to obtain hospital data. Due to the imprecise nature of E-codes in ICD-9, both fatal and non-fatal poisonings may be miscoded or misclassified as to circumstances. Discharge data from federal hospitals (including IHS) are not part of Arizona's hospital database.

Surveillance of lead poisoning and pesticide poisoning occurrences is limited by a lack of screening for and diagnosis of such health problems statewide. Therefore, under-reporting of these diseases is a concern.

## **Summary/Highlights of Data**

- The death rate from drug poisoning doubled in Arizona from 5.4 deaths per 100,000 persons in 1989 to 10.7/100,000 in 1999. However, between 1999 and 2000 the death rates for drug-related causes declined sharply to 5.1/100,000 persons in Arizona.
- Black residents of Arizona had the highest rate of drug-related death in 2000, exceeding rates for other racial ethnic groups by at least 19 percent.
- Poisoning by drugs was the 2<sup>nd</sup> leading event responsible for unintentional injury deaths in young adults (20-44 years old) and middle-aged adults (45-64 years old) in 2000. The rates were 9.9 deaths per 100,000 young adults and 6.0 deaths per middle-aged adults. Accidental overdoses accounted for more than one-fifth of all unintentional fatal injuries among young adults.
- The Arizona Poison and Drug Information Center (Tucson) received more than 65,000 calls in 2000. The Banner Health Regional Poison Center (Phoenix) received more than 75,000 calls in 2000. Unintentional poisonings accounted for the largest percentage of calls.
- Laboratories and health care providers reported 223 cases of childhood lead poisoning in Arizona during 2000; there were 54 reported cases of lead poisoning in adults.
- 18 cases of pesticide poisoning were reported statewide in 2000.

## Major Gaps in Data

1. Lack of review and synthesis of the two poison centers' data, although the data for each center have been separately analyzed.
2. Lack of analysis of hospital discharge data for poisonings.
3. Prevalence of lead poisoning and pesticide poisoning is unknown.

## Current Interventions

The two Arizona poison centers, the ADHS lead poisoning prevention program and the ADHS pesticide poisoning prevention program conduct poisoning case follow-up and public education.

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National Center for Injury Prevention and Control. *Injury Fact Book 2001-2002.* Atlanta: CDC, p 84.

Injury Name: Poisoning			
Objective #1: (Healthy People 2010) Reduce Severe Lead Poisoning (Pb > 20 ug/dL) 75% by 2010. Reduce the Prevalence of Lead Poisoning (Pb > 10 ug/dL) in Arizona by 50% by 2010.			
Strategic intervention	Key partners	Action steps	Lead party
1) Screen 100% of AHCCCS-eligible high risk children	AHCCCS AHCCCS Contractors Physicians Laboratories Medical Societies ADHS	Educate health plans and providers about the need to screen at-risk children Notify providers and families when lead screen levels are high for follow-up	AHCCCS ADHS
2) Implement a lead-based pottery and folk medicine campaign in high risk zip codes	Hispanic organizations Media Community-based organizations	Secure funding, identify target populations, implement the campaign, evaluate, and extend the campaign statewide	ADHS
3) Continue current registry program, investigate cases and make appropriate intervention referrals	ADHS County Health Departments	Maintain funding, staff and activities	ADHS

Baseline: 200 – 300 childhood lead poisoning cases reported each year, of which 20% are severe (prevalence rate data not available at this time).

Target: 50 – 75 childhood cases reported each year.

Evaluation method: Compare number of cases that are reported to the ADHS surveillance system, including rates of lead poisoning if available.

Injury Name: Poisoning			
Objective #2: Define and Prioritize Poisoning Prevention Strategies			
Strategic intervention	Key partners	Action steps	Lead party
1) Analyze data, garner stakeholder input, and prioritize poisoning prevention objectives	ADHS Poison Centers Laboratories Medical Examiners Hospitals Health Care Providers Law Enforcement Providers of Social and Behavioral Programs	Secure funding, authority and staff Collect all available data Analyze and integrate the data report Gap analysis Make recommendations	ADHS

Baseline: No central analysis of data or stakeholder input.

Target: Central system for performing analysis of data and stakeholder input.

Evaluation method: Track whether the strategic interventions were accomplished, and in a timely manner.

## Chapter 10: Fire and Burns

### Background

According to the 2000 *Injury Mortality Among Arizona Residents* report, fire and flames rank fifth among causes of unintentional injury death for all ages, but rank third for children from 1 to 14 years of age, after motor vehicle crashes and drowning. The same publication reports that thermal injury accounts for 9% of injury deaths in the state, mostly from residential fires. Although fire and burns are the only cause of injury death which is below the US incidence rate, the data in Arizona parallel national data, which show that children under 14, adults over 65, poorer residents, Native Americans, rural residents and those living in substandard housing are at greatest risk of fire and burn injury.

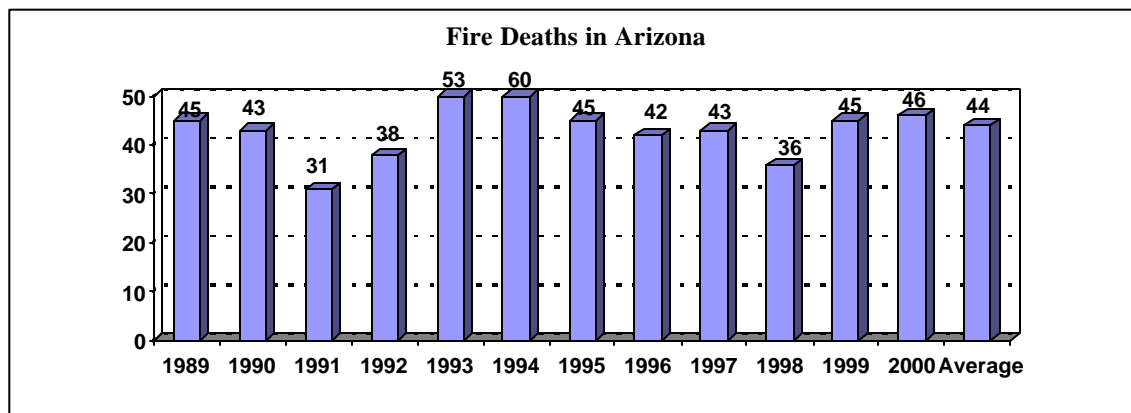


Figure 1. Deaths from unintentional injuries by fire and flames in Arizona 1989-2000.

These data include deaths due to accidental and intentional fires in dwellings, sheds, campsites, and recreational vehicles.

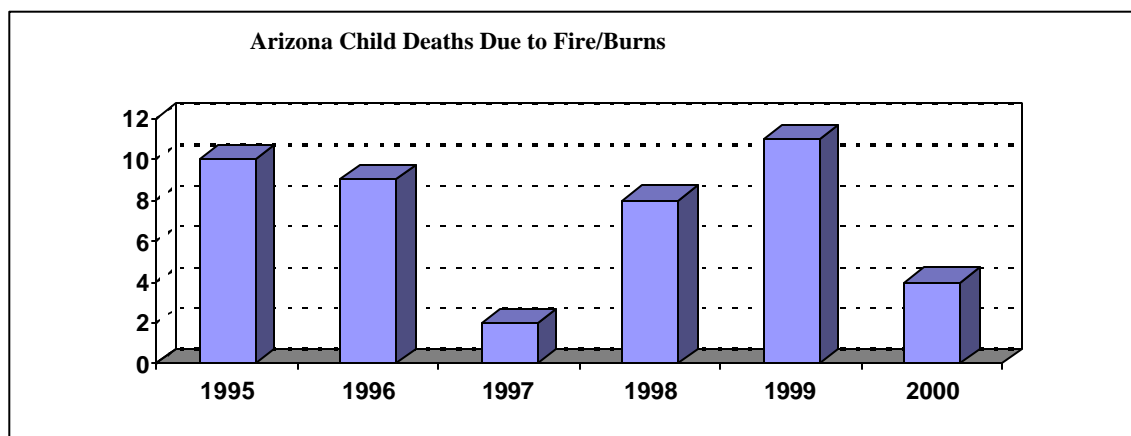


Figure 2. Deaths of Children (Ages 0-17) due to Fire/Burns in Arizona 1995-2000.

The Child Fatality Review Teams have determined that in the forty-four cases reviewed from 1995 to 2000, thirty-five of the deaths from fire and burns were preventable. In ten cases there were no smoke alarms present and in 5 cases they were non-functioning. In a substantial number of cases there was no information available regarding whether a



smoke alarm was present. From a public health standpoint, such incomplete investigative information makes it more difficult to develop data driven prevention strategies.

Fire services at local and national levels have taken a leadership role in fire and burn prevention, being actively involved in programs for children and adults. Much of this prevention effort occurs at local levels, primarily city or county. There is a strong national organization, the National Fire Protection Association (NFPA), which supports educational and risk reduction efforts locally and within a state as well as monitoring national data. Although fires and burns rank tenth among the leading causes of injury and death in Arizona, the importance of reducing such injuries lies in the extensive costs of treatment, avoiding loss of life among children and loss of economic and property income.

Despite all efforts directed toward prevention, fire and burn injuries continue to occur and to have a devastating impact on victims and the community in terms of years of life lost and potential long-term disability for survivors. For these reasons, the state prevention plan has incorporated fire and burn safety into its core focus. Fire and burn prevention at the state level, including monitoring the use of smoke alarms, will focus on building partnerships with existing fire service entities to support prevention efforts.

### **Existing Surveillance Systems**

The systems in place in Arizona to monitor fire and burn injuries are all local and voluntary: none are mandated. Although evidence suggests that agencies do report fires regularly, there is no assurance that reporting of statewide data on injuries is complete. Recently the Phoenix Fire Department has ceased using the NFPA reporting system (the National Fire Incident Reporting Service: NFIRS), which has been a resource for comparison among fire agencies.

A major focus of the Injury Prevention Plan related to fire and burn injuries and smoke alarm monitoring is to determine the reliability of the data and the ability to link among the databases. The Trauma Registry records patients seen at trauma centers, covers all ages and analyzes by case review. Death certificates are reviewed as vital statistics for all ages as well as by the Child Fatality Review Team, which reviews burn-related deaths of children from 0–17 across the state. Medical Examiner and Coroner data may also be available.

### **Strengths and Weaknesses of the Data Systems**

Sources of burn injury data include death certificates, the Child Fatality Review Team,<sup>1</sup> hospital discharge and outpatient discharge databases. The Trauma Registry will be another resource soon.<sup>2</sup> There is no mechanism to collect information on burn injuries treated without hospitalization or Emergency Room entry or if cared for in various agencies in the community. Minor burns are often treated effectively in the home.

Only nonfederal hospitals are included in the discharge and trauma databases. Hospital outpatient and trauma databases reflect only those seen in nonfederal hospitals and

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<sup>1</sup> Child Fatality Review data from 1995-2000 are currently available.

<sup>2</sup> Trauma Registry data are available from 1999 and will be available starting with 2002 data.

emergency rooms. Federal hospitals and Veteran facilities such as those on Indian reservations do not report data routinely. Maricopa Medical Center maintains its own Burn Registry.

The National Fire Incident Reporting System (NFIRS) collects nationwide data on individual incidents of fire-related injuries, including smoke alarm status, based on reports from fire services across the states. Trends, outcomes and comparisons are reported back to the fire agencies but not to the Arizona State Fire Marshal's Office, which does not maintain such information.<sup>1</sup> Recently the Phoenix Fire Department has stopped NFIRS reporting because of manpower and hardware issues.

There is currently no system in place to monitor the use of smoke alarms within the state, although such information may sometimes be included in individual reporting from the fire services. Therefore, data at the state level are incomplete. At the operational level, not all fire service agencies collect or report smoke alarm use data from fire service calls or may do so inconsistently.

### **Summary/Highlights of Data**

- Although numbers may appear to be low, unintentional injuries by fire and flames ranked 5<sup>th</sup> among all injuries in the state and were particularly prevalent among children.
- Among all residents, deaths from fire and flames have remained fairly constant on an annual basis for over a decade.
- During the past decade, there have been many efforts to educate the public, both adults and children, on fire prevention.
- Deaths by fire and flames over the past eleven years are 2.7% of the total deaths for unintentional injuries in Arizona.
- Among children, 60% of burn injuries are sustained from scalding.
- Given the extent of the intervention and the consistency of the data over the decade, the question of use of finite resources to effect further improvement versus maintenance must be addressed.

### **Major Gaps in Data**

1. Data on incidence of burns from fires may not be reliable since collection is not mandated and is incomplete, especially in rural areas.
2. Victims treated in facilities other than in hospitals would not be reported.
3. Data formerly collected using the National Fire Incident Reporting System are not available at this time in the Phoenix area.

### **Current Interventions**

A number of community-based fire alert and prevention efforts exist, especially in local fire departments. These include printed materials, Risk Watch, Urban Survival and Youth Fire-setter programs as well as general programs given in schools, such as those using the

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<sup>1</sup> Fire Marshal's office does not currently require the submission of data from the fire services.

mascot Sparky the Fire Dog. ADHS' Bureau of Emergency Medical Services houses the Safe Kids program, which includes fire safety. Hospital Emergency Departments work to reduce morbidity and mortality of victims. Other community-based health organizations, schools and pediatrician's offices, teach fire prevention to children and other family members.

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National Fire Prevention Association web site: [www.nfpa.org](http://www.nfpa.org)

Injury Name: Fire and Burn Injuries			
Objective #1: Identify and Encourage Use of Existing Reporting Systems to Collect and Analyze Data on Fire and Burn Injuries Statewide.			
Strategic intervention	Key partners	Action steps	Lead party
1) Develop existing statewide surveillance systems for fire and burn injuries and encourage consistent, standardized and complete information from fire departments and other agencies.	Tribes in AZ Fire departments (FD) EMS systems: local and regional Hospital Emergency Departments Child Fatality Review Team County Health Departments Foundation for Burns and Trauma Insurance Companies AZ Dept of Insurance AZ Burn Center – Maricopa Medical Center	Initiate review of tribal data and issues Work through Regional EMS Councils to strategize systematic and reliable use of current data systems Partner with other CBOs to develop a plan for coordination of relevant data systems.	ADHS - BEMS

Baseline: There is no mandated data collection system.

Target: Systematic reporting and analysis.

Evaluation: A system is established and reports are consistent for 3 years.

Injury Name: Fire and Burn Injuries			
Objective #2: Decrease Injury from Fire and Burns through Increased Use of Functioning Smoke Alarms.			
Strategic intervention	Key partners	Action steps	Lead party
1) Encourage local agencies to provide community education	Cities, towns Tribes in Arizona Local fire departments (FD) Public Health agencies EMS Regional Councils Arizona Burn Center (at Maricopa Medical Center)	Collaborate with EMS Regional Councils to develop appropriate strategies Identify nationally proven materials for use by community education outreach programs	ADHS - BEMS Regional Councils FD
2) Provide culturally appropriate information for homeowners and renters on appropriate use of smoke alarms	City inspectors Landlord organizations Media (print, radio, TV, movie trailers) Retailers, Real estate professional organizations Insurance Companies FD, Welcoming Committees HUD Staff	Contact Welcoming Committees Collaborate with existing partners to compile inventory of nationally proven materials	ADHS - BEMS Regional Councils FD

Baseline: Inconsistent data suggest non-use of smoke alarms contributes to fire and burn fatalities.

Target: Consistent reporting of use or non-use of smoke alarms in fires. Greater access to and use of smoke alarms in homes.

Evaluation: Consistent data on use, non-use of smoke alarms access and function.

Injury Name: Fire and Burn Injuries			
Objective #3: Reduce the Incidence of Fire and Burn Injuries and Deaths Through Community Education and Interventions			
Strategic intervention	Key partners	Action steps	Lead party
1) Reduce scald burns in children and adults through education	Pediatrician offices County H.D. Occupational health Day Care agencies Foundation for Burns and Trauma (FBT)	Review current educational materials Develop strategies for educating professionals Develop strategies for educating the public Implement education programs	ADHS
2) Expand, implement and coordinate fire and burn prevention and safety education programs	Schools CBOs Senior Citizen Centers Day Care (child and adult) FD FBT	Use nationally proven materials and programs	ADHS
3) Educate persons using space heaters on operation and safety issues	Retail outlets Landlords Schools	Establish liaison with retailers' association Collaborate with school-based care or clinic association Continue collaborative education opportunities	ADHS - BEMS, BCFHS

Baseline: Educational efforts are independently applied, often not proven.

Target: Establish recognition of effective materials and strategies. Establish routine instruction in primary language with purchase of space heaters.

Evaluation method: Nationally recognized materials will be used by all educational programs. Dealers in space heaters will supply safety instruction with each purchase.

## APPENDICES

### Acknowledgements

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## MATRIX OF GENERAL ISSUES RELATED TO INJURY

Table 1. Matrix addressing overarching issues common to injury topics.

<b>Goal 1. Provide Leadership and Resources to Support the State's Injury Plan</b>			
<b>Issue</b>	<b>Description of Issue</b>	<b>Solution or Approach</b>	<b>Action Steps</b>
ADHS Internal Organization	ADHS' injury control activities are spread among several programs located in multiple Bureaus.	Build a structure that will coordinate and collaborate activities across Bureaus.	<p>1) Locate the ADHS focal point and responsibility for the statewide plan in the Injury Prevention and Control Unit within the Bureau of Emergency Medical Services (BEMS).</p> <p>2) Continue the multi bureau Injury Internal Work Group.</p> <p>3) Coordinate the Injury Prevention Plan with the EMS/Trauma System Plan.</p>



Issue	Description of Issue	Solution or Approach	Action Steps
Resources	<p>1) Most components of the Plan are under-funded.</p> <p>2) ADHS lacks staff specifically dedicated to building an injury prevention and control program.</p> <p>3) A comprehensive defense against bioterrorism can include efforts to protect against injury.</p>	<p>1) Build the foundation upon which the Injury Prevention program can grow.</p> <p>2) Prepare to respond to federal (and other) funding opportunities as they arise during the next three years.</p> <p>3) Provide support for injury control from the related aspects of the bioterrorism (BT) program.</p>	<p>1) Maintain a state-supported core operation for injury surveillance and prevention and for grant writing.</p> <p>2) Seek a core of state-supported staff positions.</p> <p>3) Seek a reasonable level of support for injury protection (e.g., evacuation plans, hazard alert) from related programs and services.</p>
Advisory Council	The complexity of the Plan requires ADHS to seek continuing, outside advice	Establish an Injury Advisory Council (IAC) composed of a comprehensive range of interest groups.	Request ADHS Director to appoint an Injury Advisory Council.
Leadership	The External Advisory Committee (which collaborated in developing this Plan) strongly recommended that ADHS play a central role in convening partners on each topic, and in attaining these overarching goals.	<p>1) Establish the responsibility for leadership in ADHS.</p> <p>2) Empower ADHS-BEMS Injury Prevention and Control Unit to collaborate with the Injury Advisory Council and partners to implement the Plan.</p> <p>3) Assure sufficient resources to convene partners are available to the ADHS injury programs.</p>	<p>1) See ADHS-BEMS Internal Organization.</p> <p>2) Establish policy.</p> <p>3) Share CDC funds or state appropriations at the programmatic level.</p>

<b>Goal 2. Obtain and Utilize Consistent Data from Reliable Sources to Drive Policy and Intervention Strategies.</b>			
<b>Issue</b>	<b>Description of Issue</b>	<b>Solution or Approach</b>	<b>Action Steps</b>
Data Use	<p>1) ADHS lacks core epidemiology support for injury.</p> <p>2) Access to certain data sets has not been legislatively established.</p>	<p>1) Build core epi staff within the Injury Prevention and Control Unit.</p> <p>2) Obtain the legislative authority needed to collect, report, and use injury data.</p>	<p>1) BPHS will prepare mortality data and hospital data templates for use in Injury Prevention and Control Unit (IPCU).</p> <p>2) Propose legislation to grant the use of specific data.</p>
Data Sources	Accurate and complete E-coding of hospital data is essential for monitoring most injury topics.	Increase E-coding completeness and accuracy.	<p>1) IPCU will provide feedback to hospitals on effectiveness of their E-coding.</p> <p>2) Hold training sessions for hospital records technicians on E-coding.</p>
Untapped Data	EMS data are underutilized.	Create a structure that delivers analyzable data for dissemination to ADHS and other injury programs.	<p>1) Establish ED reporting rules.</p> <p>2) Bureau of Public Health Statistics will clean and distribute a standardized database with documentation to the IPCU.</p> <p>3) Access the Trauma Registry data.</p>
Evaluation	Evaluation of injury prevention strategies has rarely been conducted in Arizona.	Require ADHS injury programs to promote periodic evaluation of strategies and specify the criteria they will use in all proposals.	Review progress annually as measured by criteria.

<b>Goal 3. Formulate Policy and Enact Legislation That Will Support the Plan and Provide a Healthier State in Which to Live and Work.</b>			
<b>Issue</b>	<b>Description of Issue</b>	<b>Solution or Approach</b>	<b>Action Steps</b>
Responsibility	In order to control injury, the Plan requires a balanced approach between: a) personal responsibility, and b) societal responsibility.	1) Increase awareness of the opportunities in each arena.  2) Incorporate both approaches where appropriate.  3) Promote individual awareness and safe environments.	1) Work through the ADHS Director to approach legislators with policy issues.  2) Ask the Internal Work Group to propose injury control legislation appropriate for each injury topic.
Cost	1) There are no reliable data on total injury costs in Arizona.  2) The “cost argument” for injury control is powerful; however, the economic burden of injury is under-appreciated.	1) Promote examples of cost effective measures.  2) List the benefits to be achieved if injuries are reduced.	1) Sample case records of injured persons to generate cost data.  2) Seek support (e.g., intern) from U of A’s College of Public Health to research the topic: “Does injury prevention pay its way?” [cost benefit analysis of injury costs]

<b>Goal 4. Formulate Collaborative Partnerships Among Community-Based Groups, Agencies, and Organizations.</b>			
<b>Issue</b>	<b>Description of Issue</b>	<b>Solution or Approach</b>	<b>Action Steps</b>
Partnership	There has been too little communication between injury interest groups.	<p>1) Promote and facilitate regular communication among partners.</p> <p>2) Promote formation of a state Injury Control Coalition or similar body.</p>	<p>1) Work with Arizona Public Health Association's Injury Control Section to facilitate interactions and communication, foster cooperative effort.</p> <p>2) Seek financial and logistical support from foundations.</p> <p>3) Hold injury partner meetings twice per year for next 3 years.</p> <p>a. Establish relationship to IAC.</p> <p>b. Inform partners of ADHS' efforts to seek legislative action.</p>
Cultural appropriateness	<p>1) Large disparities are evident among populations in many injury rates.</p> <p>2) Proposed solutions must be sensitive to the needs of the target group.</p>	<p>1) Interventions must be appropriate to the target populations.</p> <p>2) Research effectiveness related to cultural attributes.</p>	<p>1) Include representation of target groups on the Injury Advisory Committee.</p> <p>2) Foster participation from different cultures in determining effectiveness of strategies.</p>
Implementation	Assure participation from a wide range of jurisdictions (federal, tribe, state, and local) and corporate and non-profit agencies.	Ensure awareness, acceptance, and integration of goals and values of Plan by all groups having injury prevention and control responsibility.	<p>1) Distribute Plan to wide range of agencies and individuals.</p> <p>2) Hold regional conferences to enroll partners and develop local strategies.</p>
Research	Universities have untapped resources to assist with crucial research.	Invite University participation in the Plan.	Build partnership to the College of Public Health's MPH program.

## ACRONYMS

### ACRONYMS

AAA  
AARP  
AAS  
ACADV  
ADES  
ADHS  
ADI  
ADOT  
ADPS  
AFSC  
AHA  
AHCCCS  
ALS  
AMA  
AMHA  
AOMA  
APA  
APS  
ARC  
ASOII  
AZDPS  
AZGFD  
AZPTA  
BEMS  
BCFHS  
BHA  
BHSAC  
BIA  
BLS  
BME  
BNI  
CAA  
CBO  
CFOI  
CFRT  
CGV  
CHD  
CODES  
CPS  
CPSC  
DES  
DOE  
DPCCA  
DPS  
EMPACT

### AGENCIES

Arizona Agency on Aging  
American Association of Retired Persons  
American Association of Suicidology  
Arizona Coalition Against Domestic Violence  
Arizona Department of Economic Security  
Arizona Department of Health Services  
Arizona Department of Insurance  
Arizona Department of Transportation  
Arizona Department of Public Safety  
Arizona Firearm Safety Coalition  
American Heart Association  
Arizona Health Care Cost Containment System  
Assurance and Licensure Services (ADHS)  
American Medical Association  
Arizona Mental Health Association  
Arizona Osteopathic Medicine Association  
Arizona Psychiatric Association  
Adult Protective Services  
American Red Cross  
Annual Survey of Occupational Injuries and Illnesses  
Arizona Department of Public Safety  
Arizona Game and Fish Department  
Arizona Parents, Teachers Association  
Bureau of Emergency Medical Services  
Bureau of Community and Family Health Services  
Behavioral Health Authority  
Bureau of Health Services Aging Coalition  
Bureau of Indian Affairs  
Bureau of Labor Statistics  
Board of Medical Examiners  
Barrows Neurological Institute  
Children's Action Alliance  
Community Based Organization  
Census of Fatal Occupational Injuries  
Child Fatality Review Team  
Citizens of Arizona to Prevent Gun Violence  
County Health Departments  
Crash Outcome Data Evaluation System  
Child Protective Services  
Consumer Product Safety Commission  
Department of Economic Security  
Department of Education  
Drowning Prevention Coalition of Central Arizona  
Department of Public Safety  
Emergency Mobile Pediatric /Adolescent Crisis Team

<b>EMS</b>	<b>Emergency Medical Services</b>
<b>FBT</b>	<b>Foundation for Burns and Trauma</b>
<b>FD</b>	<b>Fire Departments</b>
<b>GCSHI</b>	<b>Governor's Council on Spinal and Head Injuries</b>
<b>GOHS</b>	<b>Governor's Office of Highway Safety</b>
<b>GTSAC</b>	<b>Governor's Traffic Safety Advisory Council</b>
<b>HSAG</b>	<b>Health Services Advisory Group</b>
<b>IPCU</b>	<b>Injury Prevention and Control Unit</b>
<b>ITCA</b>	<b>Inter-Tribal Council of Arizona</b>
<b>MADD</b>	<b>Mothers Against Drunk Drivers</b>
<b>MAG</b>	<b>Mothers Against Gangs</b>
<b>MAN</b>	<b>Men's Anti-Violence Network</b>
<b>MCSCO</b>	<b>Maricopa County Sheriff's Office</b>
<b>MEO</b>	<b>Medical Examiners Office</b>
<b>MMC</b>	<b>Maricopa Medical Center</b>
<b>NAT</b>	<b>Native American Tribes</b>
<b>NEISS</b>	<b>National Electronic Injury Surveillance System</b>
<b>NFPA</b>	<b>National Fire Prevention Association</b>
<b>NHTSA</b>	<b>National Highway Traffic Safety Administration</b>
<b>OCSHCN</b>	<b>Office of Children with Special Health Care Needs</b>
<b>PCC</b>	<b>Poison Control Centers</b>
<b>RBHA</b>	<b>Regional Behavioral Health Authorities</b>
<b>RMSC</b>	<b>Red Means Stop Coalition</b>
<b>RW</b>	<b>Risk Watch</b>
<b>SACT</b>	<b>State Agency Coordination Team</b>
<b>SADD</b>	<b>Students Against Disruptive Decisions</b>
<b>SKC</b>	<b>Safe Kids Coalition</b>
<b>SPC</b>	<b>Suicide Prevention Coalition</b>
<b>USCG</b>	<b>United States Coast Guard</b>
<b>USDOL</b>	<b>United States Department of Labor</b>

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